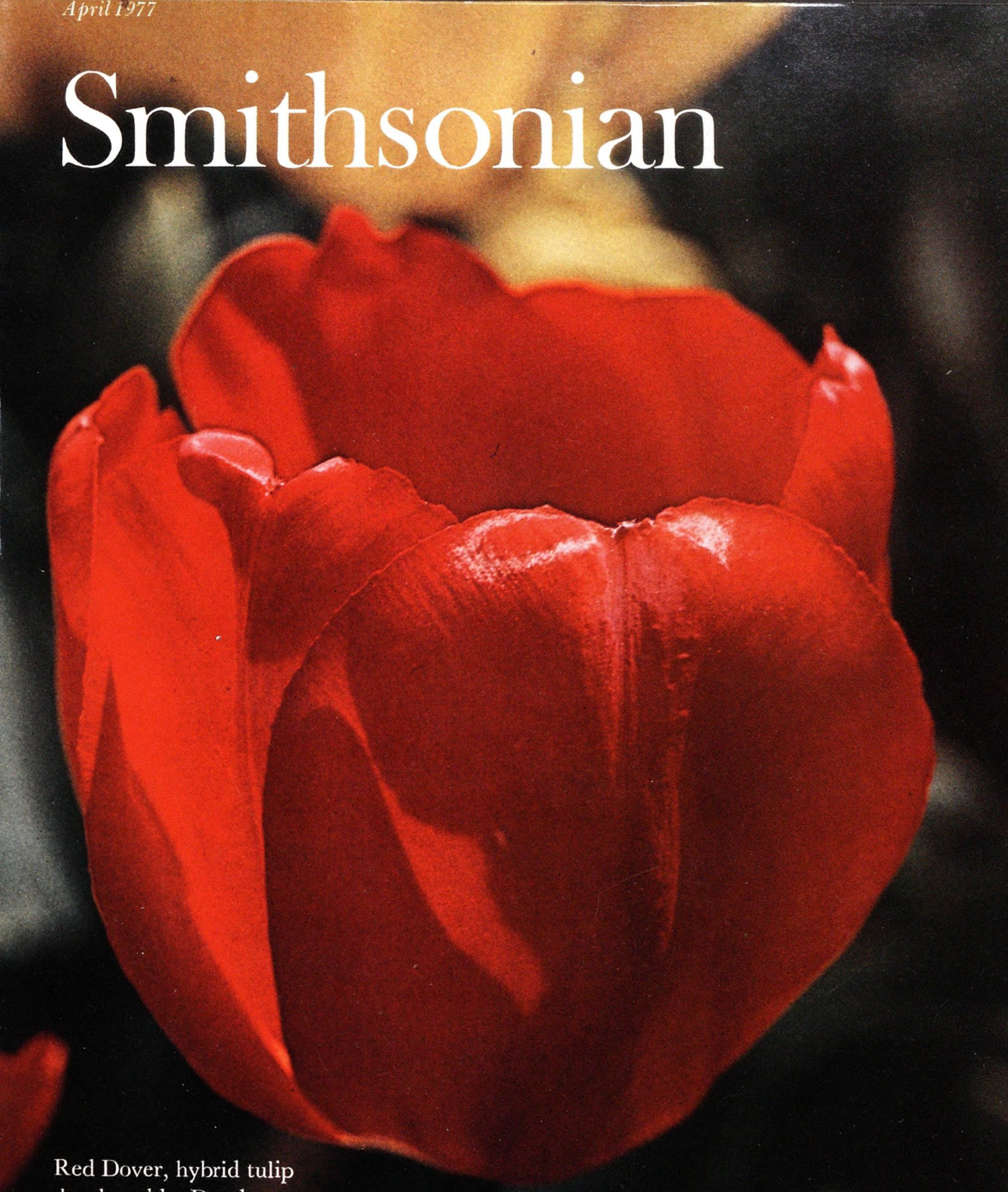
April 1977

Smithsonian



Red Dover, hybrid tulip
developed by Dutch,
in display at Smithsonian

How Holland's tulipomania
shook an economy (p. 70)

"We found this almost deserted island with a delightful little beach surrounded by flowers and pure pinky white sand."

Campbell and Marylou Miller on the Millers' third visit to Bermuda.

"I think the island is perfect, but the people make the island."

"I look forward to getting dressed for dinner. It's part of going away, part of the fun."

"The prices are very reasonable. We buy a lot of our clothes here."

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It's at home when it's not at home. That's because the CF-580 is the first complete stereo cassette system that's portable.

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April 1977

Smithsonian

Volume 8, Number 1

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How can the best $15,000 personal motor car in the world cost less than $9,000?

Several years ago, an Alfa Romeo cost more than a BMW or a Porsche. But then came the devalued lira.

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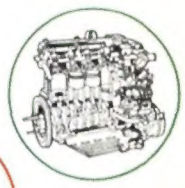
6. Five-Speed Gearbox. It is synchronized for smooth, effortless shifting. The fifth is an overdrive gear for maintaining high speeds at low engine rpm's—resulting in exceptional gas economy and longer engine life.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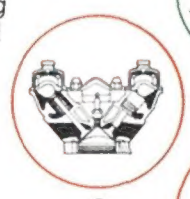
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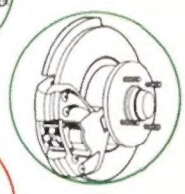
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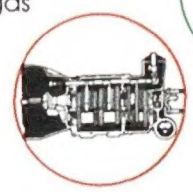
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Alfa Romeo Sedan

Alfa Romeo GT

Alfa Romeo 2000 Spider Veloce

Alfa Romeo

*EPA rating for 1976 models: 25 miles per gallon for highway driving (26 in California) and 19 miles per gallon for city driving. These are only estimates. The actual mileage you get will vary depending upon the type of driving you do, driving conditions, your driving habits, and your car's condition and optional equipment.

Lowell Thomas looks back and selects...

The Great Events of the 20th Century

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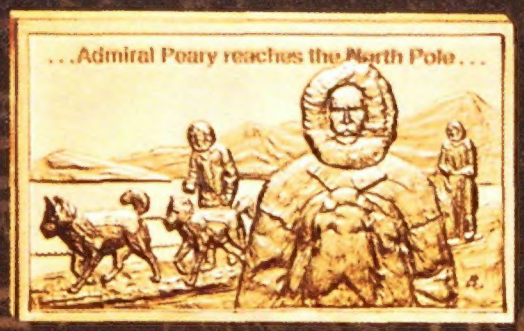

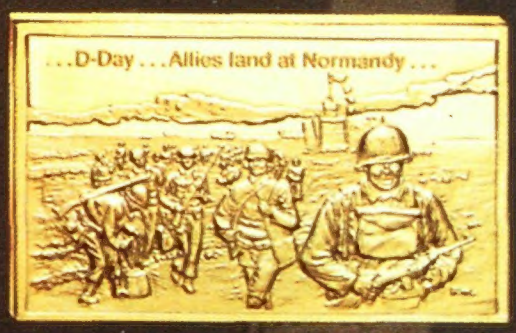

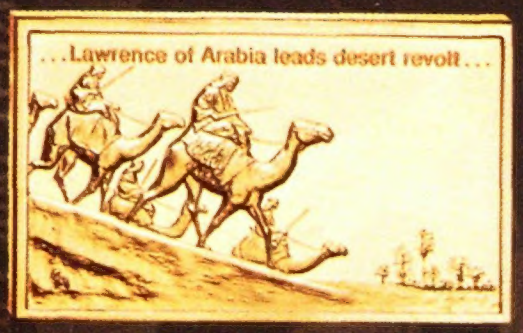

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First Edition Proof Sets
in 24kt gold on sterling silver.
Subscription deadline: April 30, 1977.

LOWELL THOMAS, the eminent journalist, author and explorer, has looked back upon his long and distinguished career and chosen the one hundred most momentous events of the 20th century. Events that have changed the course of world history. Events that have affected the lives of millions of people on every continent, and set the stage for mankind's greatest achievements in the centuries ahead.

Now, as an inspiration to our own and future generations, these great events will be permanently portrayed in a definitive collection of commemorative ingots. One hundred finely sculptured ingots of superb design created by the skilled artists and master craftsmen of The Franklin Mint, the world's largest private mint.

The First Edition of this collection will be a strictly limited Proof edition to be minted in 24 karat gold electroplate on sterling silver. This will be the *only* gold on sterling edition of this important collection that will ever be produced. Moreover, these will be The Franklin Mint's *first gold on sterling silver ingots*—a fact that is certain to enhance its desirability.

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Each design will be historically accurate and authentic in every respect. The people portrayed, the scenes depicted, the great events themselves—all will be individually authenticated.

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To enter a subscription for The Great Events of the 20th Century, your application must be postmarked no later than April 30, 1977. After that date, the rolls for First Edition Proof Sets will be permanently closed—and no gold on sterling silver Proof Sets of this collection will *ever* be made available again. Be sure to mail the application below to The Franklin Mint, Franklin Center, Pennsylvania, by April 30, 1977.

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INGOTS SHOWN ACTUAL SIZE.

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Secretary Ripley's comments

The view from the castle

Our Folklife Festival was begun to point the way to others, but we now appreciate its continuing value to the Institution itself

Ten years ago, over the Fourth of July weekend, the Smithsonian somewhat tentatively held its first Festival of American Folklife on the Mall in front of the Museum of History and Technology. Inside, the tools, the craft products, the musical instruments and other folk artifacts reposed in their cases, caught in beautifully petrified isolation. Outdoors, for the space of a few hours, they came alive in the hands of specialists from all over America.

In the summer of the Bicentennial, the festival reached its apogee: in duration, for it went on all summer; in meaning, for the folk arts it celebrated have come to be an accepted part of life; and in understanding, for the lessons learned provide a key to appreciating the creative energies which everywhere inform the human spirit. And it now appears that this folklife festival concept is so important that we must continue with it.

I am against carrying on "instant" traditions merely because they have been started. We wished only to point the way to others. There is now a folklife program at the National Endowment for the Arts. There are folklife observances all over the country, sponsored by state and local organizations, many of them helped by the National Park Service. And there is a legislated American Folklife Center at the Library of Congress, which long ago pioneered in the recording of folk music. And so I had been prepared to stop, feeling that our museums had done their part. But no, we have been besieged with many thousands of requests to continue.

It seems there is something special here. In the 1870s Major John Wesley Powell started the Smithsonian's Bureau of American Ethnology. In effect, he was a folk culturist, assembling the records of the changing Indian minority, so that their ancient traditions might live on. And that we have kept up, although much of it is "dry, old bones"—collections of cultural artifacts—whose meaning often escapes us because of the lack of an oral tradition to explain them. Yet we *have* the "bones," the magic mementos, in our collections.

What is folklife? First and foremost, the continuity of tradition. The tradition, whatever it is, has been maintained within closely knit groups. The importance of this continuity is that it has been transmitted orally, or by eye and ear, or by rote.

So the forms of folklife—whether ballads, pottery or weaving—are dependent on oral transmission, which is entirely apart from those skills learned through traditional education, from the mass media, or from tapes and records. Recently one of our curators came across a weaver still practicing a craft long since thought extinct, who could inform the curator of the right way and the wrong way to preserve his ancient craft. Here, from our point of view, is the very reason for the existence of our folk programs—proof of the value of keeping "old bones" and of the Smithsonian curators' zeal.

There is then real meaning to our championing of the Folklife Festival. We are pointing up the meaning of our collections. We are making them live in the best sense. We are engaged in an applied human science of the spirit of mankind.

S. Dillon Ripley

Switzerland is good for you.

You'll feel better just being there. You don't have to hike. You don't have to golf. Tennis. Swim. Sail. Climb. Ski. Or jog.

You can spend two sybaritic weeks lying on a 10,000 foot height chaise lounge. Making sure your tan is even. Exercising by occasionally reaching over for a glass of wine. And when it's all over you'll feel like taking on the world.

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Of course all this shouldn't give you the impression that all we're doing is breathing in that good clean air.

We're gourmeting as successfully as any country in the world. Staying up all night when we feel like it. Sipping coffee for hours in outdoor cafes. Reveling. Feasting. Festing. And practicing our well-known art of welcoming visitors.

So what are you waiting for? Choosing Switzerland as a place to do business or pleasure makes sense. It's simply a logical place for you to be.

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Peugeot unveils the 604. A car engineered to give you a level of comfort like no other car in its class.

Rarely in history has there been a serious contender to the throne of Mercedes-Benz, BMW, and Jaguar.

For these cars have long represented the epitome of sophisticated engineering and meticulous construction.

So it is with full awareness of their stature, and with full appreciation of your skepticism that any car could be their equal, that we introduce the Peugeot 604.

And place it squarely in competition with the immortals.

The Peugeot 604 is in a class with the Mercedes-Benz 280 E, the BMW 530i, and the Jaguar XJ6L in every important respect, except comfort.

In comfort, it outclasses them all. Nowhere has this fact been given more convincing testimony than in the European press. In England, Motor magazine praised the 604's "magnificent comfort." In Germany, Auto Motor Und Sport called its ride "unbeatable." And in Austria, Kurier magazine said, "The Peugeot 604 is not only the most comfortable car in its class...but indeed one of the most comfortable cars in the world."

One reason for this acclaim is the 604's oversized shock absorbers. You won't find them on any other car because they're built, and patented, by Peugeot.

Combined with the 604's fully independent suspension, large coil springs and long vertical wheel travel, they keep the car from practically ever bottoming out.

To keep noise and vibration —one of the major sources of passenger fatigue—from reaching the passenger compartment, the 604 has a "floating" differential and a

steel torque tube enclosing the drive shaft.

All of these components have been engineered to work in complete harmony. The result is a car that is obviously comfortable when you first ride in it. And incredibly comfortable when you've been riding in it all day.

But what may be more visibly comforting to you is the 604's interior. There you'll find the kind of room one would require of a chauffeur-driven sedan, which is precisely what the 604 is in many parts of Europe. There you'll also find orthopedically designed seats that are tuned to the suspension. And upholstered in your choice of velour or leather.

The front seats are fully reclining and adjust automatically for height as you move them forward and back. The rear seats have built in head rests. An option on the Mercedes-Benz and BMW. An oversight on the Jaguar.

For your added comfort, we've added air conditioning, AM/FM stereo radio, an electric sunroof, power windows, and a choice of automatic or 4-speed manual transmission. Most all come as standard equipment.

To help you pass in comfort, the 604 is powered by an overhead cam V-6 engine that's smooth, quiet, and highly responsive.

And to keep you on the road instead of all over it, there's power-assisted rack and pinion steering, power-assisted disc brakes on all four wheels, and stabilizer bars front and rear.

But perhaps the most comforting part of owning a Peugeot 604 is knowing you've bought a car that can withstand the passage of time. Not only in its classic styling by Pininfarina, but in the way it's built.

Every critical part of every 604 is inspected at least once. And, unlike most automakers, we test-drive every single car before it leaves the factory.

Finally, we'd like to leave you with this comforting news. The suggested retail price of a 604 starts at around $11,000 P.O.E.

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For your invitation to an exhibit featuring the Cybis Spring 1977 Collection on Sunday, May 1, please contact Mr. Bryant Smith, Maier & Berkele, 3225 Peachtree Rd., N.E., Atlanta, GA 30305 ...Tel. (404) 261-4911.

Phenomena, comment and notes

What's right (or left) about boys, infidelity among those lady bluebirds, and what moves Death Valley rocks

The rolling of stones has always provided Man with food for mythology, from the ancient hopelessness of Sisyphus to the present aimlessness of what with some merit could be called our Deafened Generation. One wonders, then, why so little mythology has arisen from a phenomenon that long has been known to occur in Nevada and California (the latter being the champion region of the world in the spontaneous generation of myths). There, in dry lake beds, stones weighing from around six pounds to a third of a ton have been discovered to have moved *by themselves,* sometimes several hundred feet, leaving readily distinguishable tracks across the ground.

Pet rocks in search of masters? Von Danniken-like dabblings in the orderly processes of nature? One explanation which was suggested was that moving sheets of winter ice transported the stones, but this left two California scientists unsatisfied. So, nine years ago, Robert P. Sharp and Dwight L. Carey set out to do a little rock-watching.

They labeled and named a bunch of rocks at Racetrack Playa in Death Valley National Monument, marked their positions with metal stakes and, in some cases, surrounded the stones with a corral of seven stakes wide enough apart for the stones to escape but close enough to effectively eliminate the action of a moving sheet of ice. (One imagines the stones sitting quiet but alert and watchful during

Across the valley floor, rocks make tracks

these arrangements, cleverly sensing distance and angle.)

In seven years, 28 of 30 stones stole away from their markers, generally in a north-northeasterly direction. A stone named Nancy, an attractive 250-gram cobble of syenite, moved 201 meters—possibly, Sharp and Carey estimate, at a breezy clip of as much as one meter per second.

And breezes—or to be more specific, winds—seem to be the motive force in the movement of the rocks.

It seems that at least 24 hours after the playa surface is wetted by rain, a thin film of slippery water-saturated fine clay forms over the firm base of the playa. A strong blast of wind, it is averred, then can dislodge the stones, and a continuing high wind thereafter keeps them sailing across the well-lubricated surface.

No one, of course, has ever seen this happen and romantics can cling to whatever explanations they wish. The two scientists, as if caught up in the spirit of the phenomenon, are quoted in *Scientific American* (Vol. 236, No. 2) as saying: "Some immutable law of nature probably prescribes that movements occur in the darkness of stormy moonless nights, so that even a resident observer would see newly made tracks only in the dawn of a new day."

The blue letter

One blushes to report on the nature of ornithological research in these times of loose restrictions on social behavior. Even the most intimate of avian relationships are now subject to probing—even manipulation—by scientists. In this case the marital happiness of two mountain bluebird couples has been put in serious jeopardy by David P. Barash of the University of Washington in Seattle.

Reporting his results in *The American Naturalist* (Vol. 110, No. 976), without even the slightest trace of shame, Mr. Barash explains how he intruded stuffed male model mountain bluebirds onto branches near two active nests to see how the real males would respond to their apparent cuckolding. The results were predictable: the males were furious —not only at the models but at their

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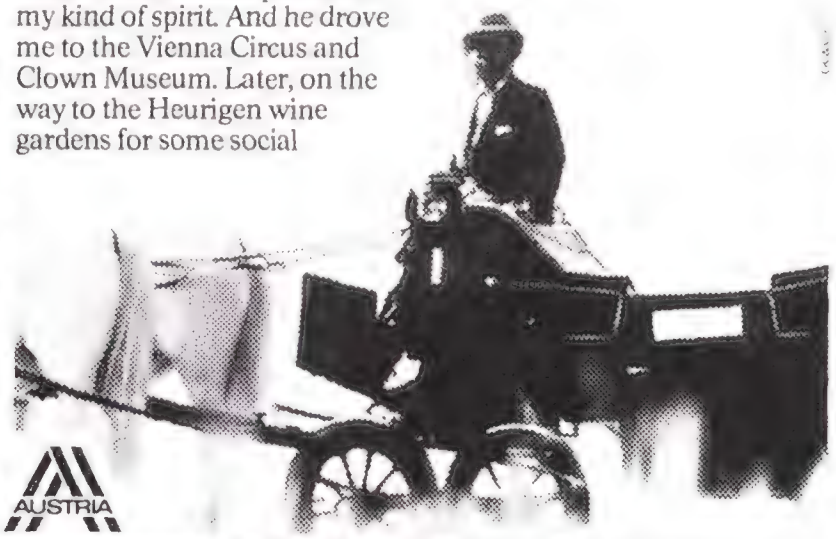

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mates. One female had several feathers removed in the ensuing melee, and subsequently was driven out and replaced by another female. This was before the eggs had been laid.

Later, once eggs were laid, similar intrusions produced similar fury against the intruder but no significant violence toward the females. Rather than being evidence of a liberated, "swingers" attitude toward their mates' extramarital carryings-on, this behavior exhibits strategy consonant with the demands of evolutionary theory, says Mr. Barash, perhaps pointing the way to an ecumenical meeting of evolutionists and those rather more puritanical proponents of the creationist theory.

Before the eggs are laid, the male probably can find a new consort, so there is little problem in risking the loss of an adulterous ingrate of a female. After egg-laying—and thus closer to the end of the short breeding season of these bluebirds—the male risks his entire annual stab at species survival and thus must forgive this kind of infidelity by his spouse, if not the putative Lothario.

(A note to female mountain bluebirds with a wandering eye: the old man doesn't seem to mind in the least when he discovers a male robin lurking around the nest.)

Mr. Barash, justifying this embarrassing line of inquiry, confesses to using the word "adultery" quite "unblushingly" and suggests that it "will eventually shed considerable light on various human foibles as well . . . ," though just which ones he doesn't say.

Right, left, boy, girl

If a female researcher in England is right, male chauvinism is a natural result of life in the womb and the ancient Greeks were almost correct in thinking that the right side is associated with masculinity and the left with femininity.

Parmenides, a Greek of the fifth century B.C., along with two millennia of thinkers after him, were pretty confident that a baby that developed on the right side of the womb would be a boy. Then along came chromosomal theory which says you need a Y chromosome to be a boy, never mind what side you got your start on. Now, along comes Ursula Mittwoch, a researcher in the Galton Laboratory at London's University College, writ-

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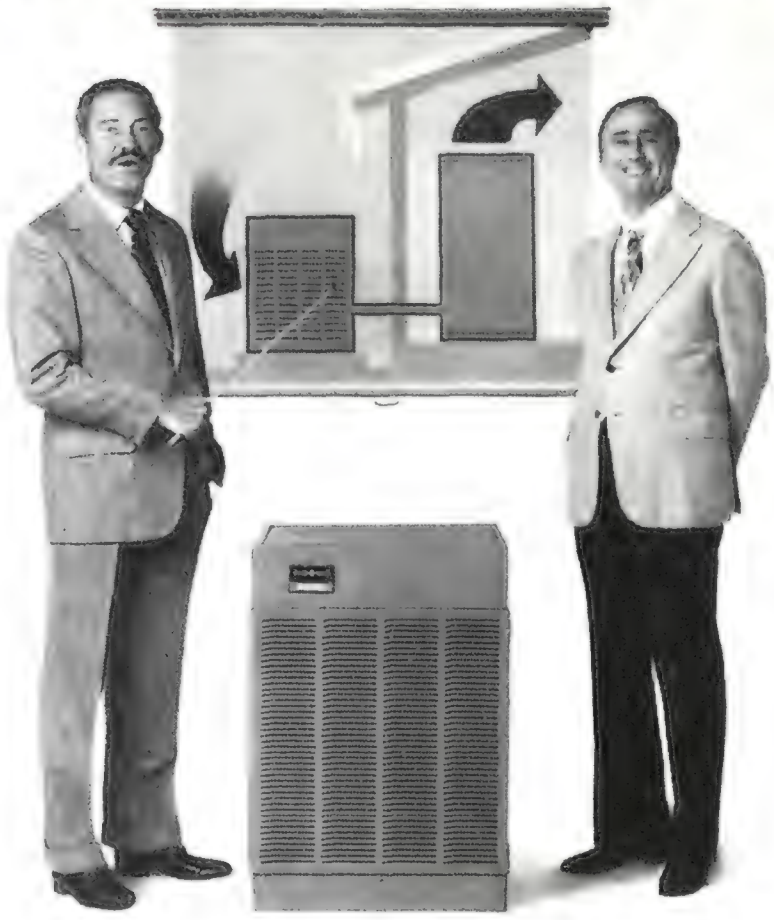

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ing in *New Scientist* (Vol. 73, No. 1034) to say that Parmenides wasn't as silly as you might think he was. This is often the case with ancient Greeks.

Miss Mittwoch studied hermaphrodites wherein the normally overpoweringly determinant Y chromosome loses much of its force. She found, by making various delicate measurements, that there *is* after all a degree of lateralization in sex potential—not in the parents but in the embryo—and that the right-hand side *is* associated with masculinity. (This applies to most mammals, and is reversed in birds, as is the XY chromosome business.) In other words, if the Y chromosome is not, for some reason, all-powerful, then the embryo is left on its own, as it were, and the sex organs are likely to assert themselves independently, with right-hand ones pushing for male, left-sided ones saying female.

In the mother's womb, Ursula Mittwoch goes on to say on what seems a separate tack, a male embryo's sex organs must develop early to fight against the pressure of the mother's female hormones in order to retain maleness, whereas female embryos have nothing to worry about in this regard, and their sex organs can (and do) develop much later in life. Thus males, starting out life in "an alien hormonal environment," may quite naturally develop a kind of macho attitude about things.

—James K. Page jr.

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Letters to the Editor

Porpoises

Dear Sir: Author Kenneth S. Norris, who wrote "Tuna sandwiches cost at least 78,000 porpoise lives a year, but there is hope," in the February issue, certainly shows a thorough knowledge of the subject. I have been participating in the efforts of humane groups who have been working for many years to try to persuade the tuna fishing industry to halt the terrible and outrageous slaughter of the intelligent and greatly loved porpoises (bad enough that it is necessary to kill so many tuna for the exploding human population). It is encouraging that efforts are at least being put forth.
K. Jane Pfleegor
Williamsport, Pennsylvania

Dear Sir: Your recognition of the plight and the habits of the fishermen was especially well expressed, and your hope that they can be turned toward more humane methods holds much merit.
Katharine W. Cohen
Murray, Kentucky

Dear Sir: Mr. Norris has obviously worked hard on the problems of the tuna industry and the survival of the porpoise. But he stops just short of the conclusions all his work points to: 1) each boat and crew should be evaluated individually and brought in whenever it has overstepped its quota (that's the negative reinforcement for careless fishermen); 2) outstanding boats and crews, besides enjoying extended fishing rights, should receive some recognition from the scientific and conservation groups (positive reinforcement).

Separating the tuna fleet into two groups seems to me too coarse a distinction. It still leaves the way free for unethical or inefficient crews to "shoot the works" to reap a faster harvest, before the overall quota gets used up.
Angel I. Ferrer
Springfield, Virginia

Dear Sir: We believe that most of the success of the *Elizabeth C.J.* is founded upon ideas gradually developed by the tuna fishermen and gear specialists of the National Marine Fisheries Service since 1971—especially in improving the "backdown procedure."

We were fortunate to have the *Elizabeth C.J.* available for the cruise charter. The government had specified that the charter vessel have helicopter capability. In the fall of 1976, only five vessels in the U.S. tuna fleet could meet such a requirement. The four other ships were fishing in areas ranging from the Central Pacific to the South Atlantic; the *Elizabeth C.J.* was in port, making ready for its last fishing voyage of the year.
August Felando
General Manager
American Tunaboat Association
San Diego

Dear Sir: What is needed and should be perfectly obtainable under the present level of science is a device that could be sounded underneath water and would alarm the porpoises (such as a recording of a porpoise in distress) and alert them to exit before they become enmeshed in the nets.
Russell Fleming jr.
Elizabeth, New Jersey
Some experimentation using sound has been carried out, but it has not been as effective as was hoped because the porpoises are too frightened to respond. Ed.

Dear Sir: A solution to the inhumane stance of foreign fleets might be to prohibit importation of tuna from any country not enforcing all restrictions placed on our fleets—and then really lay down the law to our fishermen.
John H. Brandt jr.
Buckeystown, Maryland

Lincoln Memorial

Dear Sir: In his article on sculptor Daniel French, Michael Richman refers to the

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powerful imagery of Lincoln's hands but never mentions what I feel is a most intriguing aspect: the left hand seems to be forming the letter A in the finger-spelling alphabet recognized by most members of America's deaf community. In French's statue of Thomas Gallaudet at Gallaudet College in Washington, the pose is heightened by the right hands of the educator and his pupil forming the letter A in sign language. I would like to know if it is true that Lincoln's hand also forms the letter A [see below].

Mardi J. Mauney
Providence, Rhode Island

No, it is a wishful myth with no documentation to support the finger-spelling theory about Lincoln's hands. It should also be noted that the Thomas Gallaudet Memorial *was completed in 1889 and the* Lincoln *was not begun until 1915.* Ed.

Gallaudet and pupil form letter A.

Lincoln's hand cupped, but not as an A.

Dear Sir: I am editing the papers of Daniel Chester French (1850-1931) and would like to hear from any of your readers who have in their possession correspondence to or from the sculptor.

Michael Richman
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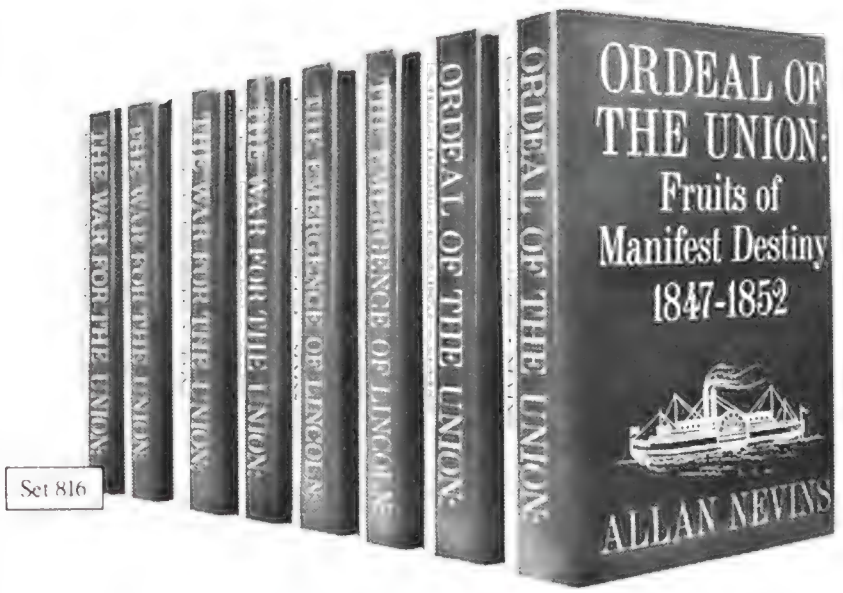

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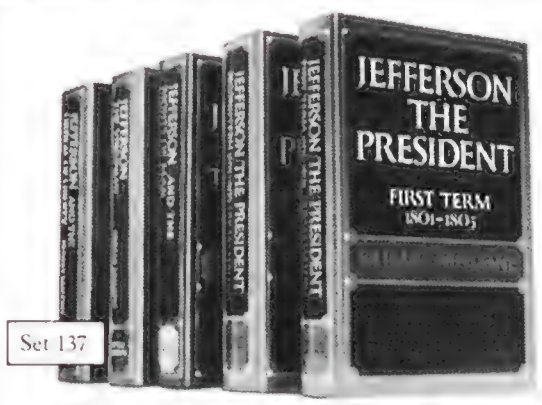

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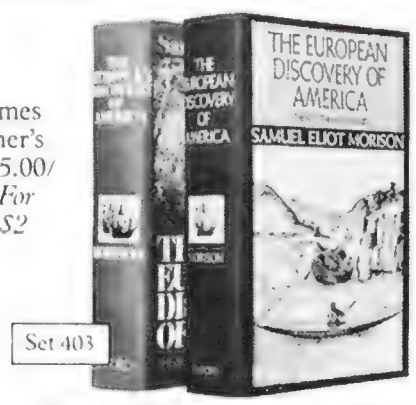

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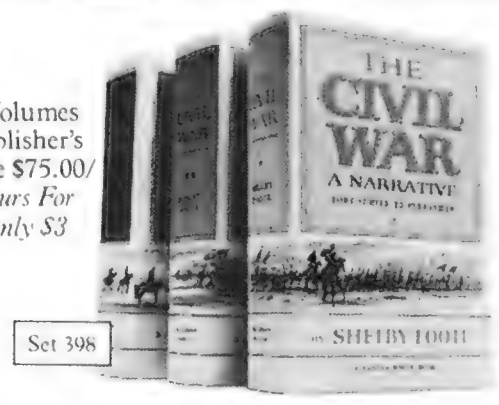

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A.G. Manville
George A. Fuller Company
New York City

Chilkoot Pass

Dear Sir: Your article on Chilkoot Pass was of special interest to me, because I've lived in Skagway for six years, working for the White Pass & Yukon Route, the railway that was built to bring the stampeders back from the Klondike.

Dyea, today, is no longer a town. There are a few old cabins there and several new ones, built by citizens of Skagway. Dyea is where we go to get away from the "city" (population approximately 800). The picture you captioned as Dyea is in fact Broadway, Skagway's main street as it looked in 1898. Today, Broadway is still unpaved, as are most of the other streets in Skagway.

Daniel R. Law
Skagway, Alaska

Phenomena, comment and notes

Dear Sir: James K. Page's reference to the article on environmental cancer in *Environmental Science & Technology* may be misleading. Dr. Eula Bingham did not write the article but was interviewed regarding her efforts to protect "women in the workplace." As author of the article, I feel overall responsibility for all the information in this special report.

Lois Ember
Washington, D.C.

Dear Sir: Those of us concerned with the cancer problem are, indeed, grateful to you for calling attention to the impor-

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tance of industrial carcinogens in the cause of cancer. However, I am disappointed that there was no mention of the environmental carcinogen that we know most about and that is by all odds the most common environmental cause of cancer, namely, tobacco smoke.

David T. Carr, M.D.
Mayo Clinic
Rochester, Minnesota

Warts

Dear Sir: I read Patrick Ryan's article on warts twice, but I still do not find my sure-fire method of eliminating the pesky things. After trying vainly other methods, such as dandelion juice, I decided to try milkweed. So, for about a week, I kept squeezing the sticky milk on my warts, blew them dry and ran off to play. Soon they were gone, and didn't return.

Keith J. Fennimore
Albion, Michigan

Dear Sir: The article on warts takes me back about 40 years when, as a boy, I lived near a small Missouri town by the name of Vanduser. At the age of six or seven, a boyhood friend taught me to cure warts (incidentally a lot of people had warts in those days of the Depression).

I swear to you that I have caused hundreds of warts to go away, large seed warts as well as the nonseed type. Here's how: go outdoors and find a partially rotted stick or piece of wood. You and the patient must be alone. The patient must tell you of every wart on his or her body. The practitioner must rub the stick over every wart thoroughly. He must then depart and bury the stick in the ground without being observed and never tell anyone. As the stick rots, the warts will come off. Time after time, I have had them disappear within three weeks. I realize the stick did not decompose in that length of time, but the warts did die. I haven't tried this cure for probably 25 years owing to an apparent lack of warts among my circle of friends.

Floyd U. Jones
Seattle

Dear Sir: My son had a dime-sized wart on the palm of his hand, which defied our doctor's best efforts.

I traced his hand on notebook paper, added a dime-sized circle, and lighted the paper which consumed everything except

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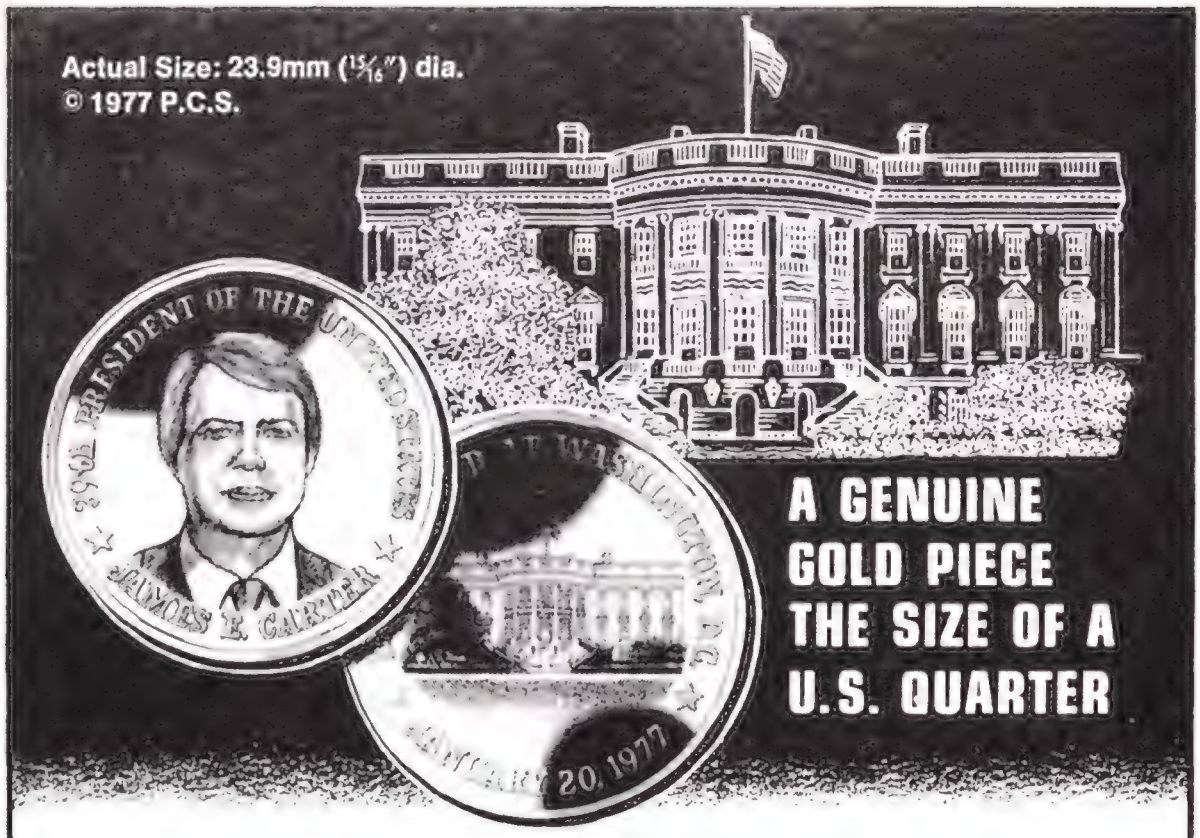

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the drawn circle. Then, I lighted another match to char the circle.

The wart is completely gone. We thank you for the "cure."
Louise Deskey
Pacific Palisades, California

Dear Sir: When I was about four, a neighbor decided to get rid of my 50-odd warts. She tied a knot in a string for each one, wrapped the string in a dishrag and buried it under the eave of her house. I was told in three days the warts would be gone. Of course, they vanished!
Norma Jean Coon, R.N.
San Diego

Dear Sir: Your version of Tom Sawyer's prescription for getting rid of warts doesn't do him justice.

As Tom tells Huck: "You got to go all by yourself, to the middle of the woods, where you know there's a spunk-water stump, and just as it's midnight you back up against the stump and jam your hand in and say:

> Barley-corn, Barley-corn, injun-meal shorts,
> Spunk-water, spunk-water swaller these warts."

E.I. Schonck
Kingston, Rhode Island

Picture credits

Dear Sir: I missed finding the picture credits in the February issue and hope you will publish them [see below].
John Fuller
New York City
They were ready for publication but got sidetracked inadvertently. Ed.

February picture credits

Cover Bill Hunter, Miami Seaquarium; 13 *Nature*, November 25, 1976; 34 Associated Press; 38 Smithsonian Institution; 44-45 Save the Dolphins; 46 National Marine Fisheries Service; 46, 47 William L. High; 48, 49 National Marine Fisheries Service; 50 John Zimmerman; 51 Lehman-Scaffa; 53 National Marine Fisheries Service; 54 Bernie Cleff; 55 courtesy Wesleyan University Archives; 56, 57 Bernie Cleff; 58 courtesy Wesleyan University Archives; 59, 60 Chesterwood Archives; 60, 61 Fred J. Maroon; 64 Victor P. Hessler; 65, 66 George Cresswell; 67 George Cresswell, Robert H. Eather; 68 courtesy of Dr. Thomas A. Potemra; 69 S.G. Smith; 70 Defense Meteorological Satellite Program; 74-81 Pierre Boulat; 84-93 Yoichi R. Okamoto; 96-103 Farrell Grehan; 106-111 Eric A. Hegg, courtesy The Joe Williamson Collection (except 109 top center Paul Von Baich); 113 Paul Von Baich; 116 Dick Swanson; 117 top courtesy Dr. J. Lawrence Angel; 117-122 Dr. J. Lawrence Angel; 123 Dick Swanson; 125 James Simmons, Walter Inglis Anderson; 126-127 James Simmons; 128-133 Walter Inglis Anderson; 135-140 J. Linsley Gressitt; 164 © Time Inc.

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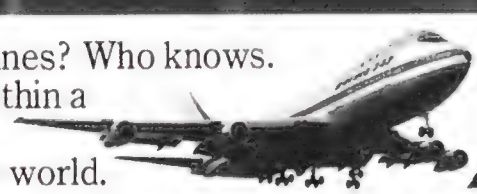

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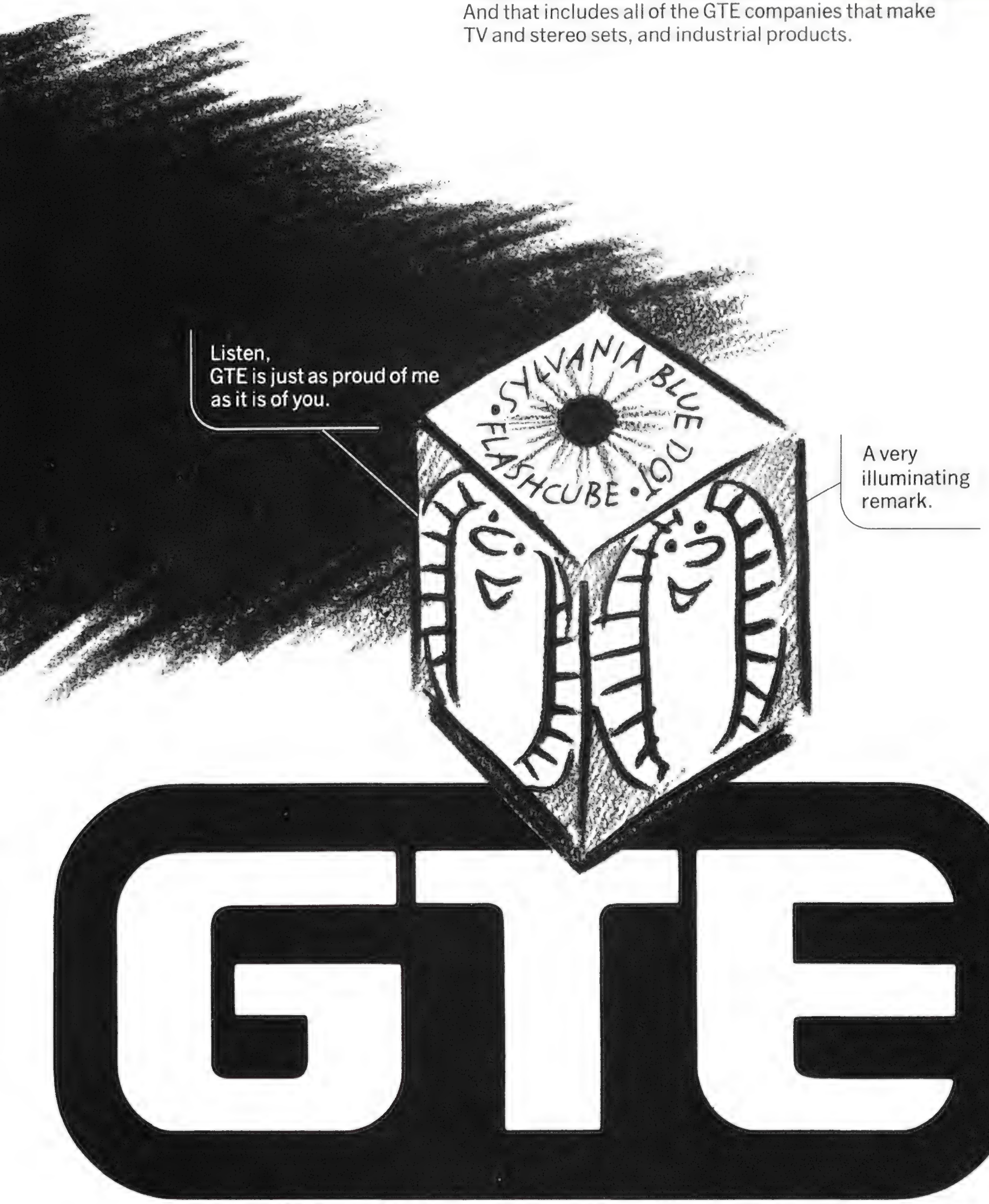

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Around the Mall and beyond

As a museum-and-research complex of considerable maturity, the Smithsonian Institution has been communicating with the outside world for years. But for the greater part of its 131-year history, the Institution's attempts to share knowledge with the public at large have not always met with universal enthusiasm. People on the outside probably didn't gather in excited salons to discuss *A New Fresh-water Isopod of the Genus Mancasellus from Indiana, and a New Terrestrial Isopod of the Genus Pseudarmadillo from Cuba,* when it was proudly produced by Mrs. Harriet Searle in 1902. That was only 75 years ago, too. Think of what some of our efforts with the media must have been like in the 1850s and '60s. As my father's friend Slocum undoubtedly would have insisted upon pointing out, "They was enough to make you look forward to a New Hampshire funeral."

Well, Slocum, times have changed. The Smithsonian is setting up a TV quiz show. It's called *What in the World,* and it's a panel game based on the idea of *To Tell the Truth,* (and, yes, it does call to mind that earlier show called *What in the World*).

Lest our scholarly image be totally shattered, I hasten to add that the panelists are chosen for erudition as well as general, all-around, everyday charm, looks, wit and sophistication. I mean, those last things are simple enough to find in any New York or Hollywood studio. But erudition, baby—only the Smithsonian can pronounce it, much less produce it for TV.

In *What in the World,* six panelists are divided into two teams of three. Between them sit the host and the authenticator. The panelists are confronted with an object or perhaps a sound that comes from somewhere in the complexities of the Smithsonian collections. Each member of Team A describes it differently. Two of the descriptions are bluffs ("just plain lyin'," Slocum would call it), and one is the truth. Team B decides what in the world the thing is. The host keeps the show rolling, the authenticator takes over after the object or sound has been identified and gives a brief sketch of where it came from and why it's important. The whole process is carried on with great good humor, urbanity, camaraderie and, well, erudition.

I was given the chance to watch a pilot for this show from beside the director in the mobile unit—a truck parked in the lot outside the Museum of Natural History, a considerable distance from Baird Auditorium inside the museum, where the action was.

On the stage of the auditorium an hour before show time were four cameras with their light and sound equipment. Each

DAPHNE
In May, MTS Daphne sails on a literary transatlantic voyage from Miami/New York to European ports with famous authors like Art Buchwald, Joseph Heller, James Jones and Eugene Fodor, among others. Then Daphne enjoys festival time in the British Isles when Green and Pleasant Lands brings you within reach of Glyndebourne, Chichester, Bath, and Stratford-on-Avon, and also to Ireland and Scotland. Call of the Vintage carries wine lovers to Jerez, Madeira, Oporto and Bordeaux. Cruise Aurora to the Land of the Midnight Sun. Visit Land of the Norsemen, and enjoy beautiful music on Echoes of the Fjords.

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covered a specific area, but of course each could pan or zoom in on a subject. Each also overlapped enough of its neighbor's field of vision so that one could always fill in for another that was momentarily hors de combat.

Hors de combat, I soon learned, is routine for TV cameras. "Two hours ago," said Nazaret Cherkezian, the Smithsonian's Director of the Office of Telecommunications, "we didn't have any show at all. All the power was out."

"Chick" Cherkezian, an old hand in the relatively new field of "remotes"—that is, TV shows that are shot away from the studio—pointed out that this pilot was the first intrusion of television into the rarefied atmosphere of Baird Auditorium, where clever films and earnest lectures are the usual fare. Yet the technical crew was taking it in stride. The four cameras practiced their pans. Producers and director chatted. Then I was hustled off to the truck.

It was jammed with gear and operators: an audio console bristling with switches and an engineer to adjust them; and a similar video console whose operator could, by pressing a button, select any one of the four cameras to be the one that was transmitting. Four monitors—black-and-white TV screens—displayed what each camera saw. A fifth screen (color) showed the edited version: what you viewers out there in TV Land would be getting in your living rooms if this were a production show.

Camerawoman aiming at panelists is about to fall off stage.

I found a place behind the director, Dave Deutsch, and as much out of the way as possible. With about ten minutes to go before show time, Dave called for a camera rehearsal.

They practiced panning on cue, "tightening" their field of vision, "loosening," "phasing," so color quality matched.

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Three minutes to go. A monitor suddenly goes blank. "Three, what the hell's wrong?" Dave asks mildly.

"Damn fuse."

"Get it fixed."

A minute to go. The four cameras are talking softly back and forth. They reminded me of a long-ago flight of fighter pilots nearing a nasty target area on a day when there was no radio blackout. The same soft voices. The same little silliness. The same mounting tension.

"Jim picked a good day to call in sick."

"Yeah. How many fuses we got left?"

"Not enough."

"I think I need to go to the bathroom."

Someone touches a button, and the opening tape rolls—a picture of the Smithsonian castle and then the orchestrion in the 1876 exhibit, for the theme music is taped from it. The credits start to move downward on the color screen.

"If my name isn't there, I'm walking off right now. You hear that, Dave?"

Dave pays no attention. The credits pass by. Nobody walks off. "Get ready One," says Dave. "Take One."

The controller's fingers twitch, and as the opening tape fades out, a view of the stage appears. The host makes his speech. The panelists smile and look charming as they are introduced.

Dave is instantly concerned with the three other cameras, preparing them for their shots. He has nothing to say to Number One.

"Get ready Three. Take Three." And right away, "Get ready Two, there's a nice reaction here. Take Two." The controller's fingers move gently like a pianist's, bringing new views.

Camera Three's picture, not being transmitted, suddenly goes crazy.

"Three! What the hell happened?"

"I fell off the damn stage."

That is the only time Dave asks for—and gets—a reply from his camera crew.

And so the half-hour passed: "Ready Four; loosen up; good. Take Four. Pan left slowly. Ready One. . . ." The viewers saw the erudite six pass judgment on a portrait of Pocahontas, a telegraph sender invented by Samuel Morse and the hissing sound of a cockroach, greatly amplified. In the van it was 32 minutes (it would be cut later) of intense concentration and teamwork.

The closing tape came on, and soon after I walked back across the Mall, limp with sympathetic exhaustion. "Did you

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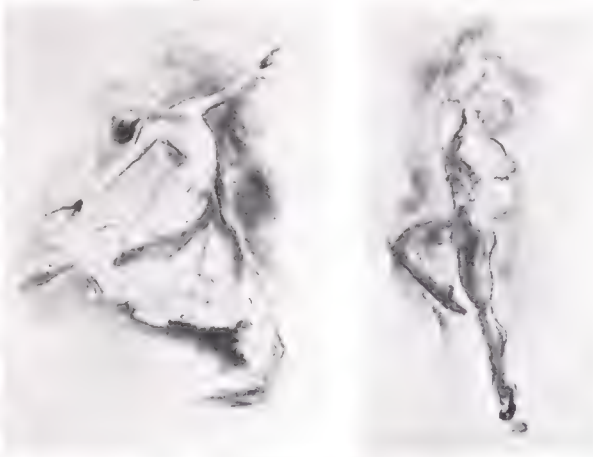

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see the TV show?" one of the people in the mail room asked. "Wasn't it neat?"

"You bet," I said. "Wow."

Faintly related because they place Smithsonian-type knowledge before the public are the museum bookstores. I talked with Florence Lloyd, a pretty dark-eyed lady whose office is almost directly under the elephant in the main lobby of the Museum of Natural History. She buys the books that the bookstores sell. It's her judgment, informed by the curators of the Smithsonian's various departments, that offers you and other visitors everything from art—Joshua Taylor's *To See Is to Think*—to John Burns' *Bio Graffiti* (see Mall, SMITHSONIAN, August 1976).

Florence Lloyd says she selects titles by reading reviews and publishing journals and catalogs. She puts the new titles up against her feel for the Institution—what's going on in the museums, in the minds of the curators—and thus chooses what she thinks the average museum visitor is apt to find interesting.

Occasionally someone objects to a selection, she says. One kick came from a Mount Vernon type who didn't like that book about George Washington's expense account. Not at all fair to the General. Wrong of the Smithsonian to sell it. Fie, for shame!

A direct form of communication, of course, is the museum label. It explains what an exhibit is, what it signifies. These are painstakingly researched little essays, written tightly and carefully by the curatorial staff. Yet they too sometimes get a complaint. A husky young man with the look of a sailor about him walked into the old Maritime Hall of the Museum of History and Technology the other day, looked around carefully until he found a certain ship's model, stared at the label that identified it, then quietly logged his complaint.

The model was of the steamship *Arago*, a vessel that carried mail across the Atlantic during the Civil War. The label says she was built by J.A. Westevelt of New York.

Aha, said the visitor, "Westevelt is spelled wrong." How did he know? Because he's Bob Westervelt, a direct descendant of Jacob A. Westervelt, who built a great many vessels back in the mid-19th century, including the famous early clipper *N.B. Palmer*.

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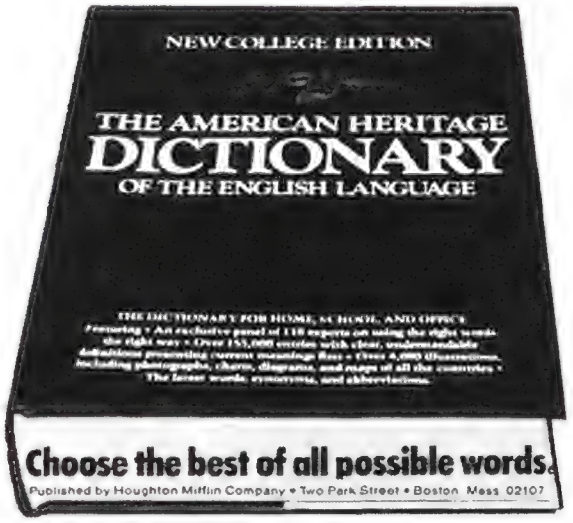
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Bob Westervelt has also built a vessel—a 36-foot ferro-cement ketch in which he sailed from Great Britain to Annapolis. Anyone who can do *that* surely can spell his own name.

Speaking of ships brings to mind a Presidential desk. After John F. Kennedy's assassination, his desk was dispatched on a tour of the nation to help raise money for the JFK Library. President Johnson went to work with another desk, and the Kennedy desk ended up at the Smithsonian where it has been on exhibit among the "We the People" displays.

In the cold depths of the recent winter, however, the old desk was fished out of its exhibit area, polished and sent off to the White House again to get back into business with President Carter. It really belongs in the White House, for it first arrived there 97 years ago to serve President Rutherford B. Hayes. (You can't say his name without saying all of it. Ever notice that?)

The desk was presented to Rutherford B. Hayes by Queen Victoria as a souvenir of HMS *Resolute*, which had been abandoned off the Alaskan coast.

It seems that HMS *Resolute* got herself locked in pack ice while searching for Arctic explorer Sir John Franklin in 1854. Her captain apparently quailed at the vision of his ship being ground to pieces—anyone who had a boat moored at a slip during the recent winter feels remarkable sympathy for him. A year later an American whaler found her, rather miraculously unharmed. The U.S. Congress purchased her from her salvager, repaired her and sent her back again to England.

This could be taken either as a nice gesture or sort of a snide one, says the naval historian who briefed me on all this. The United States was as yet not above tweaking the British Lion's tail. Being able to say, "Look here: Here's your ship that you went off and left. If you can't take care of her, at least *we* can," would rank as a pretty good tweak.

Tweak or not, Queen Victoria had a desk made from some *Resolute* timbers and sent it off to Rutherford B. It served every President through Kennedy (but he was first to use it in the Oval Office) before doing its much appreciated detached service at the Smithsonian. *Bon Voyage* once more, *Resolute*.

—Edwards Park

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"I'm not going to suggest that an oil well improves the horizon, or that an operating surface mine looks more attractive than the original landscape," says Gulf Project Engineer Ken Cassidy.

"But the fact is that, to produce the energy we need now and will need in the future, we sometimes have to disrupt the environment.

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"We work hard to keep these disruptions as small as possible, and to get the work over with as quickly as possible. And I think we're doing pretty well.

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"Here, Gulf has met two challenges: producing energy and providing an environment that's good to live in.

"There are bound to be areas in which energy companies and environmentalists may disagree. But there are solutions we can work on together.

"It's a great challenge to recover energy from the earth without permanently disrupting the environment. We are meeting this challenge. We'll continue to meet it one step at a time."

Gulf

Gulf people: meeting the challenge.

"We need the energy—but we need a good environment, too."

Gulf Oil Corporation

By Sterling Seagrave

High on a ridge in desolate northern Chile, an array of new telescopes is readied to sweep the southern

Wise men from the south peer toward what may be limits of the universe

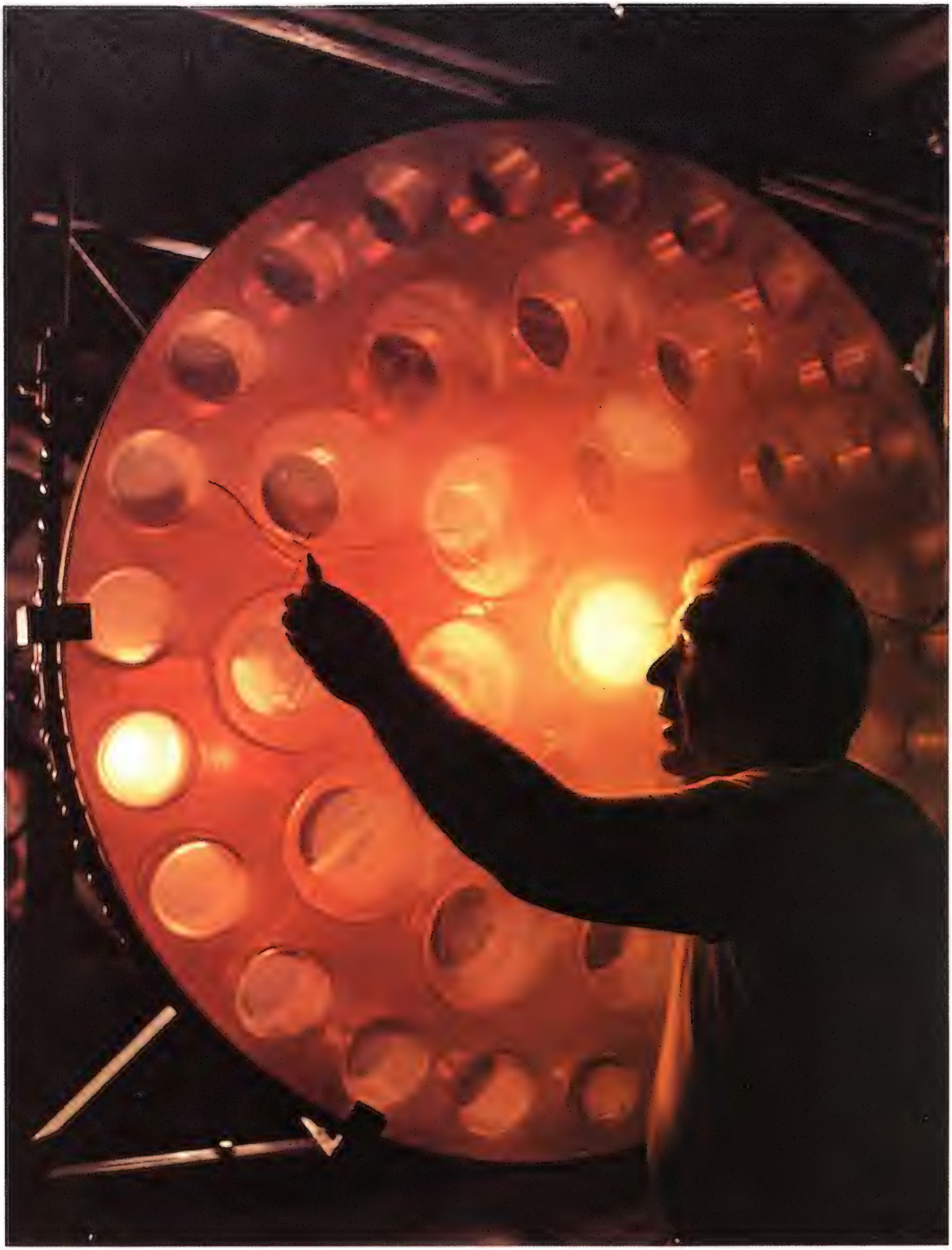
Meticulous surveys from Chile could tell us whether we should add billions of years to what we have presumed to be age of matter

sky. This is the Las Campanas site of the Hale Observatories; a 100-inch telescope is in right dome. Seeing conditions should be the best on Earth; three major observatories are within a few miles of here.

One of history's renowned drunkards, the Chinese poet Li Po, was spellbound by the stars. On a night in 762, according to legend, Li Po set his wine bottle down beside a star-filled pool, tried to embrace the universe, and drowned. So it has sometimes been with stargazers intoxicated by the heavens: occasionally they have paid dearly for this ultimate voyeurism. Copernicus wisely waited until his death to reveal his conclusions that the Earth is not the center of the universe; and only 300 years ago Galileo was threatened by the Inquisition if he used his telescope to support the findings of Copernicus.

In the last century, the solving of celestial conundrums has not been quite so risky. An astronomer simply endured long cold nights at the telescope with

This is the quasar 3C 273, the first for which the spectrum was deciphered and distance calculated. The closest, it is three billion light years away.



A technician checks the secondary mirror for 158-inch telescope at the Cerro Tololo facility of the U.S. National Observatory. Twin of an Arizona instrument, it is the largest operating in Southern Hemisphere.

Stark as a modern-day Stonehenge, the domes of Cerro Tololo cluster together on a Chilean mountaintop.

A consortium of European observatories is building a branch in Chile at Cerro La Silla, near Las Campanas.

results often as intangible as Li Po's brush strokes. In the last few years, astronomy has taken over a major place in the sciences; the term astronomer has been superseded by astrophysicist, and astrophysicists now seem almost as familiar as grocers. They talk of supernova remnants, quasars, pulsars, neutron stars and black holes as if they were so many carrots, turnips and parsnips. They gather at seminars around the country to bicker over whether the galaxies move in a regular way in relation to one another, and whether the Big Bang that created the universe will end in a Big Crunch. They bound on and off jetliners headed from Washington to Tucson or Los Angeles—or Santiago, Chile—making use of the most spectacular optical and electronic equipment the world has ever seen.

As a result of their onslaught, the suspected age of the universe is being pushed back from 10 billion to 20 billion years; they are focusing in on the moment of creation itself, and there is a sense that the ultimate secrets of the universe may be just ahead.

At the leading edge of astronomy, there are disputes of cosmic proportions. Astronomers base their professional lives on suppositions, and hard evidence to back them up does not come easily. If a team investigating indications of irregularities in the movement of galaxies produces data that prove the universe is lopsided, this creates serious, even mind-boggling problems for scores of other astronomers who have based all their efforts on the assumption that the universe is isotropic: the same in all directions.

In recent years, the team including Vera Rubin, Norbert Thonnard and W. Kent Ford jr. of the Carnegie Institution of Washington has been investigating the possibility that the universe is anisotropic (not the same in all directions). The possibility that they would prove correct caused no little dismay. There is so much in the universe that we don't understand that many find great reassurance in any evidence of consistency. Edwin Hubble's determination that galaxies are all moving away from each other at speeds proportional to their distance is a veritable cornerstone which, if disturbed, would topple a great many theories based upon it. Rubin's group used telescopes in both the northern and southern sky and found that in one region the relation between galaxy magnitude and velocity differs from that in the opposite region of the sky. The implications were disquieting. One astronomer who sees the cosmos in terms of Beethovian orchestration expresses outright anxiety.

When Rubin finally presented her group's conclusions at a symposium in Boston in December, there was an almost audible sigh of relief. She and her coworkers had found a less-jarring explanation: that our galaxy and the group it belongs to are moving at 500 kilometers per second toward a point in Perseus, and that this motion accounts for the slight variations we perceive in the recessional speeds of galaxies "ahead" of us and "behind" us. We are not watching Einstein's train go by from a stationary point beside the track, but from a point on the train itself—which is moving in relation to our immediate fellow passengers.

Similar crises and debates occur constantly over such questions as whether the universe is a Steady State (Fred Hoyle), a result of a Big Bang (George Gamow), or an oscillating succession of big bangs ending in big crunches that lead to new big bangs. A great deal of effort has been expended to discern whether the outrushing galaxies are slowing down, which would mean that they might one day come to a stop and reverse, plunging back over billions of years into a big crunch.

Great debates erupt periodically among astronomers, on a level so elegant that hardly anyone outside

the field is even aware. These conflicts are fought by computer, and the opposing cosmologists as often as not wage their debate in the control rooms of radio telescope arrays and in esoteric journals whose language is utterly opaque to the rest of us.

The pronouncements, when they come, are nonetheless soul-stirring when reduced to terms laymen can comprehend. In the latest annual report of the director of the Hale Observatories, Horace W. Babcock describes work done by Allan Sandage to determine whether the galaxies are decelerating. Sandage, applying a new method to a radio-astronomy technique, found that the perceptible deceleration is far from critical. Observed Babcock: "If the deceleration has been so mild, then the expansion is irreversible and the Universe has apparently happened only once."

There remain many elements of doubt, even about such fundamental assumptions as redshift itself. We conclude that the galaxies are receding from us because their spectra are shifted toward the red end of the spectrum; the shift becomes greater as they become more distant from us. (The redshift is a manifestation of the Doppler effect, most familiar as the drop in pitch when a moving sound source, such as a train whistle, passes us.) This is in keeping with Einstein, and it has withstood every conceivable test over many decades to serve as our basic measurement of speed and distance in the universe. Yet the discovery of quasars—Quasi Stellar Radio Sources—has so baffled astronomers that even the explanation of cosmological redshift is being called into question.

Quasars were first discovered in 1960 when radio astronomers found intense sources of radio signals that had very small diameters; Thomas Matthews and Sandage showed that some of them coincided with small points of light that had long seemed to be rather ordinary stars. Even at reasonable distances, these quasars clearly produced a great deal more radio energy than our own sun. The curious fluctuations in their light provide evidence that they are much smaller than radio galaxies. Their spectra were equally mystifying, unlike those of any known elements. When Maarten Schmidt of Hale Observatories (Mts. Wilson and Palomar) analyzed the spectrum of quasar 3C 273, a dim starlike object with a protruding gas jet, he discovered its secret. The familiar pattern of hydrogen emission was there after all, but shifted extraordinarily to the far red end of the spectrum.

Such a radical redshift, by all that we presently know about physics, meant that 3C 273 was almost three billion light years distant!

Since then, redshifts have been measured for hundreds of quasars, some appearing to be at distances as great as 15 billion light years from Earth, and moving at speeds up to 90 percent that of light. The most distant are so far away that the light we now see must have left them soon after the creation of the universe.

An explosive radio galaxy within the constellation Centaurus in the southern sky may be a link

A former Asian correspondent and now a writer with Time-Life Books, Seagrave worked with Hale astronomers during completion of du Pont telescope.

between the still mysterious quasars and normal galaxies. Dust clouds leave the dark band.

To be observable at all at such distances, these mysterious objects must shine more powerfully than a hundred galaxies each containing billions of stars. How can it be?

If they are *not* really so far away, it is not necessary to assume such incredible incandescence, and therefore they would be easier to explain. To be closer, however, the interpretation of their redshift would have to be completely wrong, or affected by some unknown principle of physics.

Even if the basic rule of redshifts is wrong, and quasars are actually not that far away from us, there would still have to be other explanations to account for their violent outburst of energy. Hale's Halton Arp argues that quasars are associated with nearby galaxies and their redshifts will be explained in time by new principles. But other astronomers contest Arp's stand, and the debate has drawn in astronomers all over the world.

Sandage and others regard quasars as signposts which can mark the outer limits of creation. The most distant quasars are the most distant objects ever discerned, and their light comes to us from as much as 15 billion years ago, two or three billion years after the time we assume that the Big Bang took place. Most astronomers consider it plausible that quasars are events in the centers of galaxies, both young and old. In one scenario, the Big Bang occurred 18 to 20 billion years ago, then after perhaps two billion years the pure energy cast in every direction cooled to form matter which then condensed into galaxies. Events still not understood near the nuclei of galaxies caused super condensations of matter to form, releasing great amounts of energy called quasars.

Not all galaxies now have quasars at their centers, according to Sandage, but many did when they were young, and even some older galaxies are still producing them. Evidence of the creation of galaxies with quasars at their centers at a very early phase of the universe comes from the observation of what seems to be a redshift limit: no quasars or anything else have been found with a redshift greater than a certain value, and this value may be the limit in distance and therefore the time into the past beyond which nothing else can be seen.

Although most astronomers appear to accept that quasars are in the nuclei of galaxies, it is not clear at all what they actually are, what form they have or how they produce such extraordinary energy. If they *are* associated with the galaxy centers, they are so distant and so bright that we can only discern the nuclei and not the surrounding parent galaxy.

Unquestionably, they are burning evidence that we have yet to know the real nature of the cosmos. Lately there have been so many statistical answers to the riddles of the sphinx emerging from the new astronomy that the ordinary human mind craves mystery once more. We come to miss the emperor's clothes. If quasars are what they appear to be, they give a certain comforting dimension to the universe. If not, then we are not as close to understanding the evolution of the universe as we think.

The view from Chile

A group of astrophysicists recently stepped off a jet painted with Calder colors at the airport in Santiago, Chile, downed pisco sours in the airport lounge, then flew north in a smaller plane to La Serena, a port town on the desolate Norte Chico coast. The astrophysicists drove north by Land Rover across barren landscape into a bleak coastal range bordering the great Atacama Desert. The Marslike terrain appears devoid of life, except in rocky pockets where a few wild flowers grow.

The Land Rover climbed thousands of feet above the desert to a ridge with a condor's view of the mountains and the desert floor below. On the crest against a deep blue sky rose three large white domes and a

few smaller, boxlike structures (pp. 40-41). There, and on similar ridges several miles to the south, were some of the most advanced astronomical instruments on Earth—the most expensive cluster of optics, electronics and delicate machinery ever assembled in one place for such a purpose.

That night, under skies as clear as any to be found on the planet, the visitors could sit back in upholstered lounge chairs in a comfortable computerized control room and watch a television monitor linked to a brand-new 100-inch telescope, while a technician found the coordinates for a tiny fragment of sky in the Ophiuchus region of the Milky Way swirling overhead.

The astronomers were at the new 100-inch Irénée du Pont Telescope, just completed at the Cerro Las Campanas Observatory in Chile by the Carnegie Institution of Washington and the California Institute of Technology. Las Campanas is part of the Hale Observatories, operated by Carnegie and Caltech.

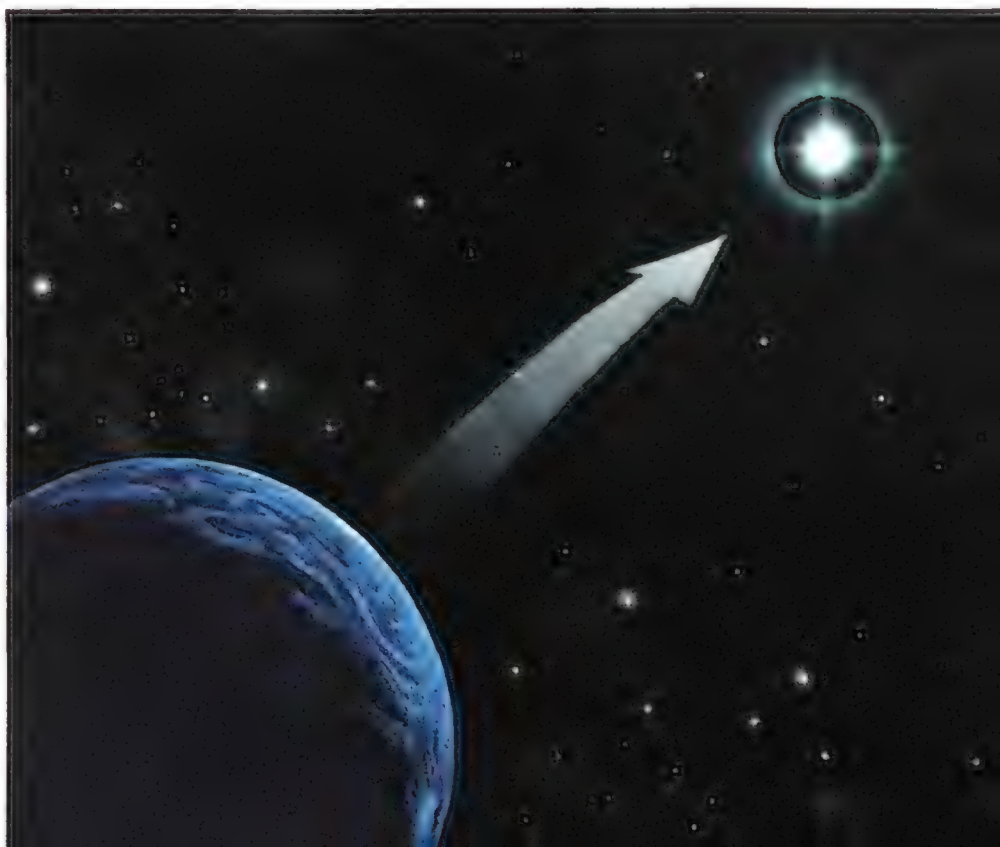
It is only one of many spectacular instruments that wheel and turn silently through the nights in north-central Chile, staring cyclopically at the stars. Also at Las Campanas are a 40-inch reflector, a 10-inch refractor, as well as a 24-inch reflector operated by the University of Toronto. The du Pont is linked to a new modern spectrographic system which is expected to make major contributions to our understanding of the chemistry of creation.

Partly visible just to the south on a ridge called Cerro La Silla is a similar cluster of instruments which make up the European Southern Observatory (ESO), a joint venture of European nations. A bit farther south, and 50 miles inland from La Serena, is another array at the Cerro Tololo Inter-American Observatory, including a 158-inch reflector—the largest of its kind in the Southern Hemisphere.

The du Pont telescope is well suited to study the chemical history of galaxies, especially the Magellanic Clouds which are observable only in the southern sky, which may in turn lead to a better understanding of the formation and evolution of the whole universe. For example, it is known that the average heavy-element abundance per gram of matter is lower in the Large Magellanic Cloud than in the Milky Way, and considerably lower in the Small Magellanic Cloud. A wide-field survey of the chemical composition of certain types of stars in the Magellanic Clouds might help explain why these differences exist. In turn, this may lead to some conclusions about the age of the Clouds and the stage of evolution they have reached. Because they are our satellite galaxies and closest to us, study of the Clouds can be precise, with results that can later be extrapolated to other, distant galaxies.

The Magellanic Clouds are also among the most active region of star formation accessible to us. The heart of our own Milky Way Galaxy is obscured by cosmic dust. In the Clouds we can see clearly at comparatively close range stars that have been formed recently with underlying layers of stars that are apparently much older. They form what Sandage calls "a page-by-page history of star formation that unfolds as each layer is removed."

"There is a theory," Sandage said in his office at Hale Observatories, "among many theories, that in the beginning of these galaxies there was a burst of star formation, with gaseous material left over that formed other stars later; with the du Pont telescope,



Paintings give scale to the universe. From the left: the nearest star is 275,000 times the Earth-sun distance; the nearest major galaxy is 465,000 times that distance; nearest quasar is about 1,500 times that.

we hope to uncover the layers, like the layers of Troy or the layers of a pearl, until we can determine the basic chemical formation and composition of the Magellanic Clouds—and from them all galaxies.

"One hundred years ago," he went on, "the dream was to understand the evolution of human life. Now the dream is to understand the evolution of the entire universe. And it seems to be within our grasp.

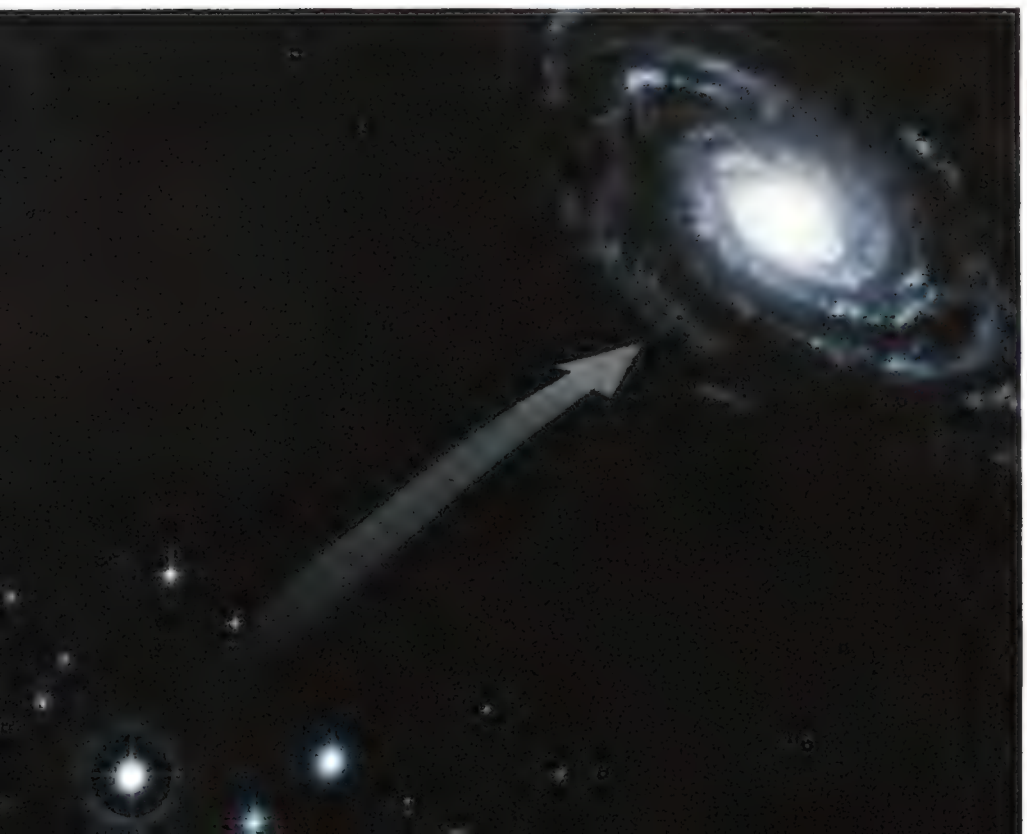
"Astronomers throughout the world are now searching for the most distant quasars, which some of us believe to be the nuclei of galaxies. They are so brilliant that they are visible at distances so great we cannot see their parent galaxy. We have found that the redshift of the most distant quasars apparently never exceeds a certain point, a sort of redshift limit. The farther you look out into the universe, the farther back in time you see because of the time it takes for light to travel such vast distances. In the currently accepted scenario of the universe's being formed in a Big Bang, there was only radiation in the beginning. Gradually, the radiation turned into matter, the matter cooled and condensed into proto-galaxies, the galaxies collapsed to form stars with quasars at their centers. So, if you had an instrument powerful enough to see out into the universe (and hence back in time) the equivalent of not 10 billion years but 15 billion, toward the moment of creation, you would see galaxies as they were when they first came into existence after the Big Bang.

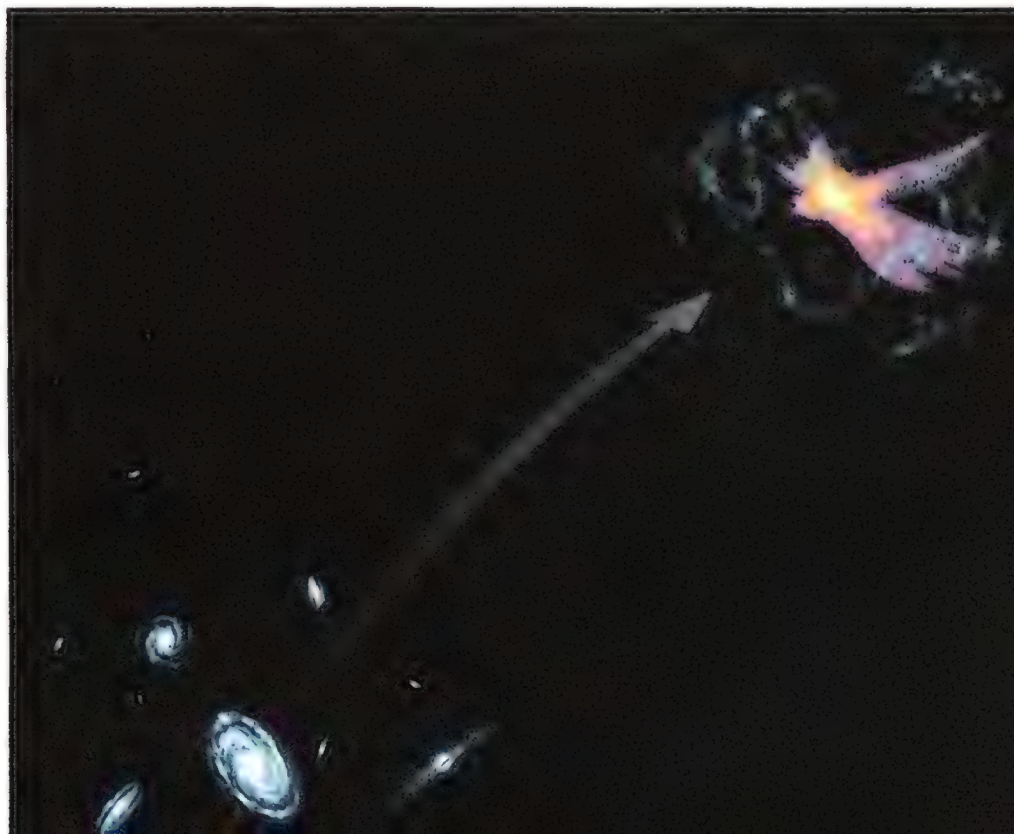
"If you accept that the universe is approximately 17 billion years old, and that you can only see objects that are closer than 15 billion light years (because there were no galaxies until two billion years after the creation event), then the observed redshift limit gives the time into the past *before* which galaxies, and hence quasars, had come into being. We would then have arrived at the time when the initial galaxies condensed out of the undifferentiated pregalactic material.

"With the du Pont telescope's survey capability, we can try to accumulate enough data from the southern heavens to see whether this theory about the formation of the universe is truly uniform—whether, for example, the quasar redshift limit is the same in all directions. It is a painstaking process. It will not be done quickly or easily. But astronomers are long-distance runners. Hubble took more than a decade to obtain his data on the Local Group galaxies, then several more years to analyze them. But out of that patient concentration—requiring 100 nights at the telescope—came data and conclusions that opened Man's knowledge of the distances to the frontiers of the universe.

"There are many other things we need to know, many other projects aside from the quasar survey that will be undertaken. But now, thanks to the new telescopes in Chile, at a time of major advances in knowledge of the universe, the way is open to observing astronomers to begin serious long-range research projects that promise contributions to knowledge many years from now that without this equipment might otherwise be frustrated."

There is no way to anticipate what extraordinary truths and revelations the long-distance runners may find at the end of the path—or whether there is an end. Only half a century ago, within our lifetimes, many astronomers assumed that there was only one galaxy in the universe. Even by 1920 we were only beginning to comprehend the size of the Milky Way, and the fact that galaxies much bigger than it is filled inconceivable distances in a universe apparently beyond human grasp. In their attempts to take the real measure of that universe now, from both the Northern and Southern hemispheres, the new astronomers venture into star-filled depths even the poet-drunkard Li Po might hesitate to embrace.





By Dean Brelis and John Reader

Students immerse selves in foreign living and fun, too

In the hands of INTERALP, *Americans spend a semester abroad, getting a new view of the world and themselves*

Kalymnos, 12 by 6 miles, is one of the most remote of Greece's 400 islands. It has a clear line of human history back to the 12th century B.C., when the Dorians arrived. Today, along with locations in Kenya and Costa Rica, it has become a school for young Americans in an educational experiment called INTERALP, the Intercultural Action Learning Program.

Since 1973, when the program was started by Mimi Summerskill of Princeton, New Jersey, nearly 200 teen-agers have taken part in it. Senator Hubert Humphrey has called the United States "a world power with half-world knowledge," and INTERALP is a small, dedicated effort to redress the balance. Its main thrust, the founder says, "is to expose young Americans to another culture in depth by providing an alternative to traditional classroom learning. For a whole semester its students are immersed in a culture other than their own. By being there, they learn that there are other family structures, other political systems, other kinds of problems. They are smelling, feeling, working, wondering, talking—always with fine minds prodding their thinking, encouraging their growth."

I knew that people seldom choose Kalymnos for a holiday. It had always struck me as happily free of tourist hoopla and traps. Its people stare unblinkingly

On the terrace of the school building on Kalymnos, students and local Greeks circle in dance class.

Photographs by Dmitri Kessel, John Reader

A lesson in how to milk a goat. Kalotina Olymbitou, who lives on Kalymnos, shows and tells. Robin

at life, and at death. Its peculiar character is that today, as was true 3,000 years ago, its men routinely risk all against the sea. The Kalymnian is a sponge diver. He sails ships which are remarkable facsimiles of those wide-beamed vessels that explored the Mediterranean under Phoenician captains and crews. He sails away for months at a time in pursuit of the sponge, to waters far from home, the coast of North Africa.

So as we neared Kalymnos last winter I [Dean Brelis] wondered what the American kids had learned there and what reaction the presence of teen-agers from California and Massachusetts had wrought upon the proud Greeks who associate their destiny with tides, stars, storms, the sponge and the imponderable of luck.

The school's main house, Homestead, stands back from the harbor, in an orange grove on higher ground; it has a somewhat decrepit appearance. There are doors of old wood, flowers and plants along the veranda. Chickens run loose, scratching beneath olive, fig, apricot and almond trees. From inside one hears laughter and talking. There is an outdoor faucet and sink and a pretty blonde girl is hunched over, brushing her teeth. It is early morning and I introduce myself and she says, rinsing out her mouth, "One thing you learn here. Simple is best." She is Peggie Peattie, she is 17, and her hometown is Malibu, California.

Oh, yeah, I think to myself. The simplicity of the environment does not speak of the $1,850 tuition nor the air fare which runs to another $600 or more. She seems to read what is running through my mind and says, "Americans have a lot to learn about feelings. There's no price tag on them."

Dean Brelis is an American correspondent based in Athens. John Reader, whose home is in Nairobi, described cattle-trekking across the Kalahari desert in the April 1976 SMITHSONIAN.

In the kitchen several young people are cleaning up the breakfast dishes. There is a sense of disorder which does not quite equate with the fact that everyone is doing something: wiping, whistling, humming, sweeping. The disorder is a superficial first impression; they are working together effectively. The room is small and the ceiling high; buckets of water have been carried in from the outdoor sink; no one is on edge or clumsily bumping into one another. Louise Kirn, a 17-year-old from Columbus, Ohio, offers me coffee.

"I feel part of Greece. On a little island like this one you're immediately into the community. You learn from people, then start to use a few phrases of the language, gaining confidence so you can express ideas. Sure you grope, but you begin to understand why the people of this island have a natural happiness. They're not complicated. Life is centered in the family; the role the mother plays is as important as the father's. The kids are not shoved aside."

Steve Tamari, also 17, from Haiti, joins us. Steve works in a sponge factory as part of the school's program; each student volunteers for a part-time unpaid job intrinsic to the life of Kalymnos. Five days a week

Tsevdos, from Cleveland, is the learner. Elisabeth Ladenson (right), from New York, holds goat.

Steve Tamari, employed part-time in a sponge factory, and Peggie Peattie wash sponges in the sea.

they are occupied at road repairs, planting trees, carpentry, picking fruit, making pastry, weaving rugs. Steve feels lucky to have his job in the sponge industry.

"You know," he says, "I stand there in the factory and as we clean and clip the sponges, I am aware that a man had to dive to the bottom of the ocean to get the things. They go down naked with a rope tied around their middle. No mask. They have a heavy marble stone tucked under their arms like a guy rushing the line with a football. And when he gets to the bottom of the ocean the piece of marble is his anchor. The rope is his lifeline to the ship way up there on top. The diver carries a knife—very sharp—and he goes after the sponges. They go into weird places. And they have to worry about the bends. That's the enemy—the bends. You see all these crippled men on the island, some are just kids my age—and they are crippled for life but they don't want any sympathy. No way. They tell you they 'had the bad luck,' they got the bends."

Intensity attends almost every aspect of Greek life, and INTERALP sets out to match the Greek mood. Before dawn an old bronze ship's bell sends out a loud warning that it is time to face another day. The sun is not yet in sight. The wind is cold and dampness pervades everything. Reveille is spartan and spurns even the basic amenities of a military barracks. One tap to serve 12 students and two teachers. One bathroom. They wait their turn. In those first minutes the youngsters learn tolerance. There is no squabbling as they scurry up and down stairs, in and out of the rambling house to cook their own breakfast.

After breakfast I joined Robin Gustafson, 17, of Concord, Massachusetts, and Santha Parke, 18, of Middlebury, Vermont, for a visit to a Greek home in Vathi. We followed a road along a cliff by the sea where there were caves with numerous Neolithic and Bronze Age artifacts. "You know," said Robin, "I never quite believed there were alternatives. Before I came to Kalymnos I thought it was all pretty much joining the system or trying to avoid it. No one told me there were other directions."

"The Greeks use a French word, *flou*," said Santha Parke as we approached the house of a widow for whom they had been picking tangerines. "It means things are shaggy, like a picture gone out of focus. Well, I think I was *flou* before I got here and I'm not

anymore, and I think it's because I appreciate little things. Like the way the lady we're going to see loves her kitchen and how spotless she keeps it."

I saw Themalina Kountonis running out to meet us, wiping her hands on her apron. She was in widow's black; she has black eyes of intense sympathy. When she saw Santha's thin cotton blouse, her eyes filled with concern. She picked at the fabric, testing its weight, and said, "You are a naughty girl. This is for summer. It's winter now. You should wear something warm." Santha said she would next time, and she laughed and drew closer to Themalina, who wrapped her thick arms around the young American. The embrace and the kisses took away all difficulties. Then talk back and forth in halting Greek, answered with patient phrasing by the widow. They were going off on an *ekdromi*? But when would they be back from this excursion? This wasn't the last good-bye? Ah, good, they'd be back in three days. She would pray for them.

I realize that these human contacts make the Greek character familiar, if not revealing something deeper. But that does not tend to be the only value of the program. Not at all. In the afternoon there are classes in the Greek language, modern Greek history, and study of the important modern poets such as Nobel Prize-winner George Seferis. The program also has a rotating faculty of six to eight guest lecturers a term; it includes author Kay Cicellis, archaeologists Susan Walker and Penelope Mountjoy, Kimon Friar (translator of Kazantzakis), art historian Peter Bates, philosopher Makis Koen and scholars such as Princeton's Richard Burgi and Oxford's Michael Herzfeld. Now and again there are archaeological field trips to the nearby islands of Kos, Leros, Patmos and Rhodes, with a graduation expedition to Athens and Delphi.

"Each trip is a fresh surprise," says Marci Newell, 17, of Shaker Heights, Ohio, on the day we leave Kalymnos in a small *caïque*. We are packed like sheep along the gunwales. The sea is rough and a stiff breeze blows straight into our faces, but the small boat fights back and plows through. Our destination is the island of Kos where the kids will spend several days studying classical Greek and Roman sites and temples. Hippocrates was born on the island, and at a time when magic and religion still dominated medical thought, he is traditionally accepted as having introduced the scientific approach to disease. We climbed the terraces upon which the Asclepion was built, one of Man's earliest hospitals; guest teacher Stelios Anastasiades, an artist, is speaking. "Before Hippocrates there was a legendary god of medicine named Asclepios. His symbol was the serpent.Hippocrates did not believe in supernatural causes or cures, but the snake has remained a medical emblem. It may have comforted the superstitious who thought scientific doctors were cranks."

They move over to some fallen marble in the grass and have a picnic lunch. They can see Kalymnos in the distance, and the white of waves beating against rock. They are many miles from home, but they have the look of young people who have begun to find peace and a vision within themselves.

Mackinder Valley in Kenya provides a gentle route back to civilization after five days scrambling among the peaks of Mount Kenya [John Reader's world]. At 14,000 feet, the head of the valley freezes hard each night, but the morning sun warms the backs of climbers descending the southwestern slopes. It is a weird landscape, the snow peaks of Tereri and Sendeyo standing over a tussocky upland studded with giant lobelia and grotesque tree groundsel. An augur buz-

At the Kalymnos boatyard, Rachel Johnson from Liberty, Missouri, and Steve Tamari watch workman.

zard soars from the valley floor, a hyrax scampers away; iridescent sunbirds hover at the flowers of a lobelia. Apart from the wind and the sound of a distant stream, there is little to ruffle the utter peace of Mackinder Valley on a fine morning.

Walking easily now, the four Americans and two Kenyans are leaving the heart of a mountain—the shattered, eroded core of an extinct volcano that a million years ago stood higher than Kilimanjaro. The black rocks streaked with crystals of feldspar are behind them; so are the glaciers, the caves, the freezing rain, the exhaustion, and the mice that ran over them during the night in Kami Hut.

As they reach the valley floor and the peaks disappear behind the ridge, John Macone turns back for a moment, waves and shouts, *"Kwa heri milima,* it's been real, man!" The words sum up the sentiments of the American students. After 25 days in Kenya, the Swahili for "good-bye, mountain" comes easily, and the colloquialism hides depths of real experience.

A new experience atop Mount Kenya

John is a privileged lad. He has lived in Europe and South Africa, and at 17 he can fly an aircraft and sail a yacht. But neither he nor his companions had ever climbed so high before; nor had they ever rented "long johns" and needed to wear them. They had never trudged through mud for five hours in a sweeping hailstorm and they had never, never sat slumped against a rock with eyes closed, every muscle aching, ten hours after breakfast and 1,000 feet below dinner, lacking the energy to stand up, let alone climb the ridge. But they did, and they reached the night stop at 14,730 feet well before the full moon rose between Nelion and Batian, the highest of Kenya's peaks.

This scene of awesome beauty, reflected on the water of the tarn below, was hardly noticed by the party as they sat huddled together in a 12-by-8-foot iron hut eating platefuls of a stewed steak-spaghetti concoction. Outside the wind was howling, the temperature had dropped too far below freezing for standing about to admire the view; it made more sense to stay inside, cracking jokes, warm among companions who had shared the exhaustion and a great personal achievement: they had all climbed Mount Kenya to 16,355 feet, a climb to be proud of.

The Mount Kenya climb is an integral part of the Kenyan INTERALP program. Denise Ridgway, 18, came from Terre Haute, Indiana; Tim Williams, also 18, came from Connecticut and John Macone was from Vermont. The program was no less an experience for Kenyan students who had joined INTERALP on scholarships sponsored by the Mobil Oil Corporation; both Hassan Musa and Paripoi Ole Kaelo came from Narok, just 120 miles away as the crow flies, and neither had ever been so far from home before.

But Paripoi, after some days of quiet observation, soon emerged as leader among the students. He is 22 years old, a member of the Maasai tribe, and left school this year at the equivalent of 9th grade. Deficient in formal education, he emanates a full experience of life that the Americans instinctively acknowledged. When they failed yet again to recall all the verses of *Junk Food Junkie,* Paripoi could lull them into admiring silence with the mournful beauty of the long-drawn whistling calls he uses to herd his father's cattle. If John and Tim went on too long with their yachting knots, he would take the rope and demonstrate knots to trip a bushbuck or trap a porcupine; if Denise couldn't get the pots clean in cold water without detergent, Paripoi would take ashes and do it.

The base from which the students make their forays of learning experience during the 15 weeks they spend in Kenya is a camp above the northern shore of Lake Nakuru (SMITHSONIAN, June 1973), a national park famous throughout the world for its birdlife. Camp life is austere. The students and their mentors sleep in tents; the common quarters are two adjoining thatched stone huts with a veranda in between. There is no electricity; the wholesome and substantial food is cooked over charcoal fires. The students do their own laundry in buckets.

Program administrative director Rosemary Owen, a biology graduate from London University, who was born and raised in Kenya, has laid down the work regime—a rotation of camp tasks, menu planning, shopping and equipment maintenance. John Huyler, program director, a Princeton graduate and former

On hillside above the town and harbor, Nick Germanacos, program director, lectures on poetry.

Helping to build a primary school, Denise Ridgway of Terre Haute, Indiana, hauls up water bucket.

naval flying instructor, teaches the daily Swahili lesson and chairs "Africa Astir," a discussion of Kenyan current affairs—political, sociological and economic—held each evening. In addition, the students must keep a journal, write home, and write up within weeks a personal academic project requiring significant research.

On the face of it, living within a national park may seem likely to insulate the students from the realities of Kenyan life, but not at all. They encountered some of these realities in prodigious quantities when they cleaned up part of the Lake Nakuru shore. In the course of a morning they filled a dump truck two-thirds full with the rubbish that spews seasonally from the town of Nakuru's storm drains near Hippo Point. Bicycle frames, bed frames, chairs, plastic bottles by the dozen and flip-top cans by the score, the INTERALPers cleaned it all up with a will.

The group was taken on bird walks by INTERALP executive director John Hopcraft, an ornithologist who is also director of the Nakuru-based Baharini Wildlife Trust. They assisted with the monthly census of Nakuru's animal populations, undertaken by park authorities to monitor numbers and distribution.

But while they worked in the park and marveled at

American and African youths struggle up the scree below a glacier on their climb of Mount Kenya.

Before leaving Kenya, youngsters visit the populous family of Paripoi Ole Kaelo, second from left.

the profusion of life that Lake Nakuru supports, the conflict of industry and wildlife in a developing country was inescapable. They soon became fully aware of the controversy raging in Kenya's establishment over the chemical factory a senior government official has helped set up in Nakuru, from which poisonous air- and waterborne effluents threaten to kill the algae that are the basis of the lake's entire ecosystem.

Not only do Kenyan parents pay for their childrens' schooling—often they build the school, too. *Harambee,* so frequently seen in the names of schools and village dispensaries, means "pull together." To give them a closer understanding of the word, the students worked with the farmers of a cooperative farm near Nakuru on the Kagoto Harambee Primary School. They shoveled dirt, carried stone blocks and broke rock.

At the end of the two-week work stint, the Kagota farmers held a meeting to thank the students. The headmaster, Bosco Mithanga, spoke for all when he said, "We didn't know Europeans [*i.e.*, Americans] could work so hard."

Soon they would leave Nakuru to spend a week in the Maasai Mara Reserve, watching animals and considering ecology. Then a week in Nairobi to visit museums and hear lectures on Kenyan economics and sociology; after that a drive to the coast for the last five weeks of the program at Malindi, beside the Indian Ocean. Palm trees, skin diving over coral reefs, white sands, marine biology, more Swahili and another personal project to be researched and written up.

But before all that, Paripoi had invited the Americans to visit his home and his Maasai family, offering a meeting of cultures which, in its simple unfolding, became a warm congratulation of INTERALP, the hearts that conceived it, and the students who participated. Paripoi led them into his father's *manyatta,* or compound, and lined them up with his family (below).

Later Paripoi led the way to a clearing where he and his brothers had prepared a picnic for the visitors. It was cool and shady in the clearing. Paripoi had killed a young goat and stewed the meat, diced with potatoes and onions. He plied his guests with several platefuls.

Just before dark, the Americans pitched their tents a short distance from the *manyatta.* John asked where he should make the fire. Said Paripoi, "Make it anywhere. Remember, this is *my* land."

"Yes, I know, and we are really happy to be here."

"You are welcome; come back again."

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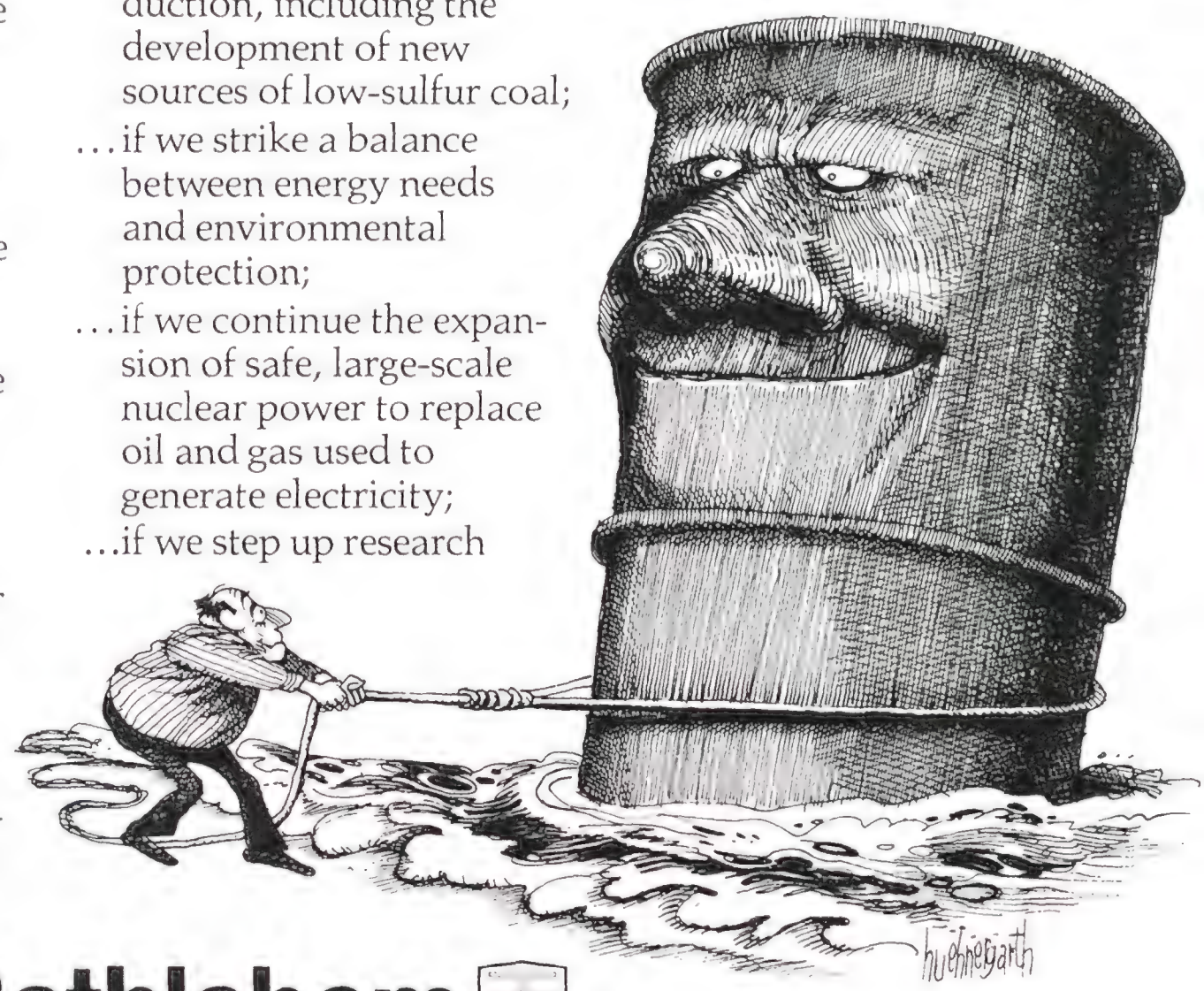

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Sincerely yours,

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By Otto Friedrich

Clover and Henry Adams—a most unusual love story

"I had a farewell letter from Henry James. . . . He wished, he said, his last farewell to be said to me as I seemed to him 'the incarnation of my native land'—a most equivocal compliment coming from him. Am I then vulgar, dreary, and impossible to live with?"—Mrs. Henry Adams

"James knows almost nothing of women but the mere outside. He never had a wife." —Henry Adams

At a pause in the mild slope of a Washington hillside, shadowed now by the holly trees that bar the dying sun, there sits the enigmatic figure of a woman in bronze. She is of heroic size, more than six feet tall, and anyone who comes to look at her must look upward, as though from the position of a kneeling supplicant. Her metallic face seems utterly impassive, darkened by almost a century of wind and rain (see details on these pages). Her eyes are closed, perhaps in sorrow, perhaps in resignation. Her head is covered with a bronze shroud—oxidized green by now—"so that it throws the face in shadow," as her creator said, "and gives a strong impression of mystery."

When Adams' wife died, he commissioned the great memorial shown here, yet he never mentioned her in his autobiography

All around this statue, in Rock Creek Cemetery, the traditional gravestones preserve the names of the dead. Here lies "Anna May, wife of George A. Gustin, died Sept. 4, 1881, aged 32," and here lie her children, "Alfred Francis, died Aug. 11, 1875, 1 yr. and 7 mos.," and "Anna Violet, died Jan. 21, 1877, aged 4 ys., 3 mos." The bronze woman offers no such testimony. There is no statement that this is the grave of Clover Adams, born Marian Hooper, who killed herself on December 6, 1885, at the age of 42. And no statement that her husband, Henry Adams, having declared that "fate has smashed the life out of me," encouraged someone to return here on every anniversary of Clover's death to place on her grave a bouquet of her favorite flowers, white violets.

In a way, the anonymity is quite appropriate, since the woman in bronze is not Clover at all. Clover was small and sharp and funny and not at all a goddess. "She is certainly not handsome; nor would she be called quite plain, I think . . ." Henry Adams had once written to a friend about the young Miss Hooper, whom he had met in London in 1866 and recently re-

The Adams terriers were treated like members of the family. Here, Possum, Marquis and Boojum hold still for Clover's camera at a dogs' "tea party."

Near the end of their yearlong honeymoon, in July 1873, the Adamses visited their friend Charles Milnes Gaskell at Wenlock Abbey, Shropshire, and

discovered in Cambridge. "She knows her own mind uncommon well. Her manners are quiet. She reads German—also Latin—also, I fear, a little Greek. . . ." Henry James was less academic in his appraisal of the girl. Writing to his brother William in 1870, when he and Clover were both 26, he complained of a certain deficiency in the vapid conversation of the young ladies of London. "They are well enough," he said, "[but] I revolt from their dreary, deathly want of—what shall I call it?—Clover Hooper has it—intellectual grace. . . ."

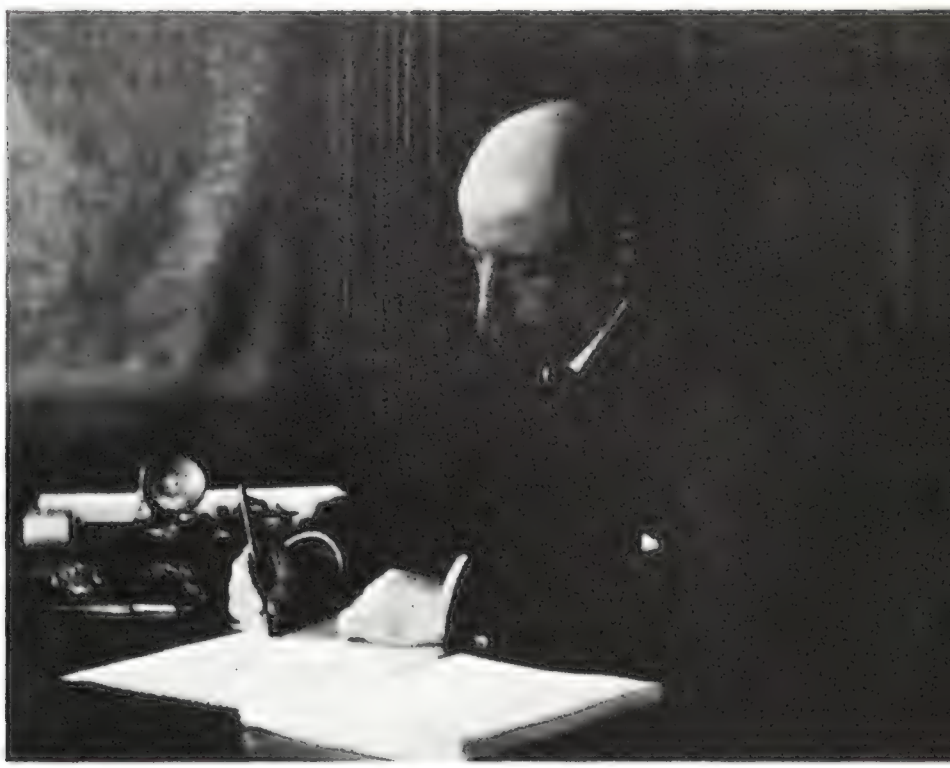
The bronze woman in Rock Creek Cemetery is rather different—stately, serene, not quite human—and many strangers who never knew much about Clover have come to this cemetery to admire this statue as one of the finest creations of Augustus Saint-Gaudens. In *A Modern Comedy*, for example, John Galsworthy sent Soames Forsyte to sit on the facing granite bench, designed by Stanford White, and to reflect that Saint-Gaudens' statue was "the best thing he had come across in America: the one that gave him the most pleasure, in spite of all the water he had seen at Niagara and those skyscrapers in New York." Alexander Woollcott, a sort of American cousin of the philistine Forsytes, made a similar voyage to Rock Creek Cemetery and proclaimed Saint-Gaudens' work "the most beautiful thing ever fashioned by the hand of man on this continent."

But these are sentimental hyperboles from a sentimental age. Not many people make a pilgrimage to the Adams memorial nowadays. "I don't even know where that cemetery is," says the Washington taxi driver, a white-haired man wearing a green knitted cap on his head in the 80-degree heat, and sucking on an unlit cigar butt that he holds between his toothless gums—a survivor, perhaps, from the days when the shriveled figure of the octogenarian Henry Adams still walked the shaded fringes of Lafayette Square. Only with a map can the taxi driver find Rock Creek Cemetery, and only after protracted circling can he find Clover's grave. Parked on the slope, then, he shuts off his engine and waits, indifferent, for his tourists to finish their rituals of search and recognition. In the sunset, beyond the holly trees, a hidden covey of birds suddenly bursts into a triumphant chorus.

If the woman in bronze is not Clover, then it can only be an image, like so many other images in her life, of what other people thought she was. We do not know exactly what Henry Adams asked of Saint-Gaudens after Clover's death, only that he wanted a figure representing the concept of sublime serenity. As for the details, Adams wrote to a friend that he had "told Saint-Gaudens that he should be absolutely free from interference." Such an absolute freedom is hard to imagine, for either the writer or the sculptor. From Saint-Gaudens' own correspondence, we learn that he

Otto Friedrich, a senior editor of Time, *is writing a biography of Mrs. Adams, to be published next year by Simon & Schuster. His latest book was* Going Crazy: An Inquiry Into Madness in Our Time.

were photographed with him (far left) and several guests. Henry is lounging in the foreground; Clover sits at the back (right) with face averted.



A skillful photographer, Clover made this portrait of Henry at Beverly Farms, Massachusetts, where they spent the summers with their dogs and horses.

wrote to Adams: "Do you remember setting aside some photographs of Chinese statues, Buddha, etc. for me to take away from Washington? I forgot them. I should like to have them now. Is there any book *not long* that you think might assist me in grasping the situation?"

Who but a sculptor could make such a suggestion? That the husband of a dead woman might know of a book—*"not long"*—that might illuminate some photographs—"etc."—that might provide the materials for a statue? Adams' response was his traditional recourse: silence. So when Saint-Gaudens asked Adams to come and see his clay model of the future statue—hoping, presumably, for the approval that every artist wants to hear for his unfinished work—Adams refused even to look at it. That was apparently his idea of "freedom from interference." Saint-Gaudens, however, was apprehensive. "The face is an instrument on which different strains can be played," he wrote to Adams, "and I may have struck a key in a direction quite different from your feeling in the matter."

Adams gave way only to the extent of asking his friend John La Farge to look at the clay model. La Farge apparently approved, but then Adams took him off on a lingering tour of the South Seas. From places like Tahiti, Adams began complaining about Saint-Gaudens' delays. "At times I begin to doubt if Saint-Gaudens will ever let the work be finished," he wrote to a friend in 1891. "I half suspect that my refusal to take the responsibility of formally approving it, in clay, frightened him. Had I cared less about it, I should have gone to see it as he wished. . . ."

Actually, of course, Saint-Gaudens was laboring away—always seeking new commissions, always falling behind his promised deadlines—in his cluttered studio in midtown New York. Here he finished the hooded figure that is perhaps his masterpiece. Finished it and had it installed in Washington and waited for the taciturn historian to come and inspect it. The historian, having paid something on the order of $25,000 for the monument, was deeply impressed. "Naturally every detail interested him," he subsequently wrote in *The Education of Henry Adams,* "every line; every touch of the artist; every change of light and shade; every point of relation; every possible doubt of Saint-Gaudens' correctness of taste or feeling; so that, as the spring approached, he was apt to stop there often to see what the figure had to tell him that was new; but, in all that it had to say, he never once thought of questioning what it meant."

Clover herself might have been more skeptical. Nowadays, having been educated to the visions of a Mondrian or a Kandinsky, we are not likely to ask what any work of art "means," but in that era, not too long after the Philadelphia Centennial Exposition of 1876 had proudly exhibited not only the newly completed torch-bearing forearm of Frédéric Bartholdi's Statue of Liberty, but also a classical head of Iolanthe sculpted in butter and a Liberty Bell made of tobacco leaves—in such an era, the meaning of any monument was as much a part of the public domain as its height or tonnage. Mark Twain was apparently the first to give Clover's memorial one of its most familiar names:

"Grief." Adams himself wrote to a friend: "My own name for it is 'The Peace of God'."

But as he sat on the granite bench that still confronts the statue, he was surprised to hear other visitors argue over its meaning, and even more surprised to hear various clergymen denounce it. "One [minister] after another brought companions there," he observed, "and, apparently fascinated by their own reflection, broke out passionately against the expression they felt in the figure of despair, of atheism, of denial. Like the others, the priest saw only what he brought. Like all great artists, Saint-Gaudens held up the mirror and no more." And when Theodore Roosevelt, during a dinner at the White House, referred to it as a female figure, Adams wrote him the next day: ". . . will you try to do Saint-Gaudens the justice to remark that his expression was a little higher than sex can give. As he meant it, he wanted to exclude sex, and sink it in the idea of humanity. The figure is sexless."

Adams professed to believe that the meaning of the statue would have been perfectly obvious to anyone who lived outside the American struggle for money and power and position. "He supposed its meaning to be the one commonplace about it—the oldest idea known to human thought," he wrote in the *Education*. "He knew that if he asked an Asiatic its meaning, not a man, woman, or child from Cairo to Kamchatka would have needed more than a glance to reply." Perhaps, perhaps—but why is it, then, that when Saint-Gaudens held up his mirror, we can see all of American culture in the Gilded Age, and yet we cannot catch even a glimpse of Clover herself?

"You're really going to write a whole book about Clover Adams?" the woman asks, a nice woman, sensible, intelligent, a reviewer of cultural events for the *New York Times*, and we are drinking cheap red wine amidst the debris of somebody else's dinner party.

"Is that so surprising?"

"It's just that I've spent so much time—and suffered so many scraped knees—looking for that statue in Washington."

"Why did you do that? I mean, why so much effort in the search for Clover Adams?"

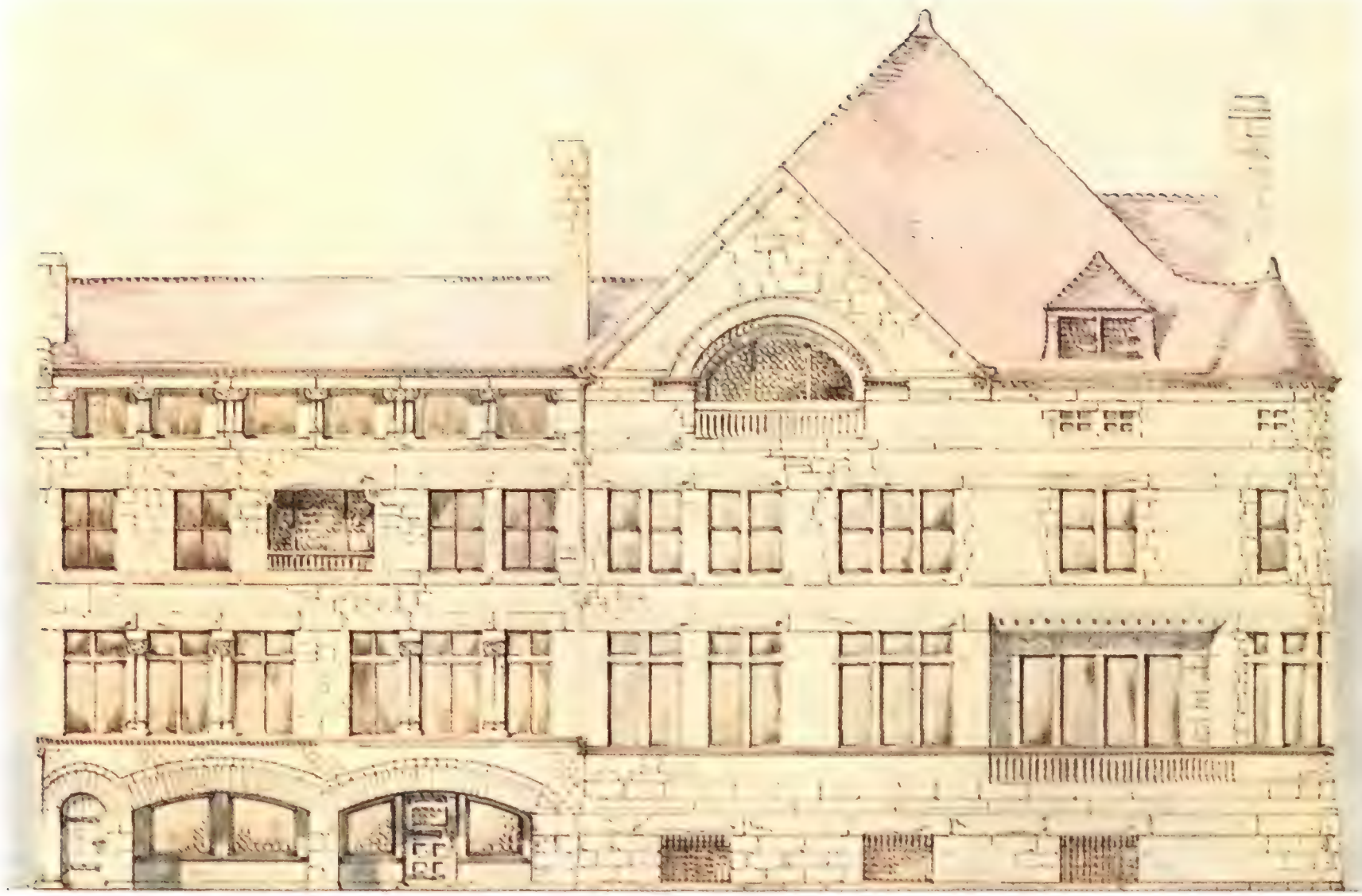
"Well, partly because Henry Adams never once mentioned her in his whole autobiography."

It is, of course, true. The twentieth chapter of the *Education* is entitled "Failure" and dated 1871, the year before Adams' marriage to Clover. The next chapter is entitled "Twenty Years After," and is dated 1892. During those missing years, Adams and Clover were generally thought to be enjoying an idyllic (though childless) marriage. They went riding together almost every morning, and they argued all the tumultuous issues of the day, from the rise of social Darwinism to the failure of civil-service reform, and they maintained the most fashionable salon in Washington, with dinner guests as diverse as Grover Cleveland and Henry James. Indeed, James confided to his *Notebooks* in 1884 that he would like "a chance to *do* Washington, so far as I know it, and . . . I might even *do* Henry Adams and his wife." When he finally did do the Adamses, in *Pandora*, he portrayed a couple of such social distinction that the husband, Alfred Bonnycastle, a man who "was not in politics, though politics were much in him," could propose to his wife a truly omniverous party at the end of the social season: "Let us be vulgar and have some fun—let us invite the President."

How strange indeed that Henry Adams never spoke of his marriage as part of his *Education*, that it was years, in fact, before he ever spoke of it at all.

Just five months before Clover killed herself, there died, unable to speak, eaten away by cancer of the throat and mouth, able only to scribble the last pages of his mountainous autobiography, Ulysses S. Grant. Clover had known him once, as all Bostonians had known him, as the Agamemnon of the Civil War. When she was 21, in the spring of 1865, she had learned that Grant's triumphant Army of the Potomac was to pass through Washington in review. "Then and there," she wrote to her cousin Mary Louisa Shaw, "I vowed to myself that go I would." She not only went to Washington, but had a splendid time.

With all her customary confidence, Clover negotiated for seats in the Congressional reviewing stand. Then, "up at five-thirty, the most perfect day I ever saw." And then, "so it came, this glorious old army of the Potomac, for six hours marching past, eighteen or twenty miles long, their colors telling their sad history. Some regiments with nothing but a bare pole, a little



Drawing of the town houses on Lafayette Square, Washington, designed by H. H. Richardson for John Hay and Henry Adams (the Adams house is on the left). The Hay-Adams hotel now occupies the site.

bit of rag only, hanging a few inches, to show where their flag had been. Others that had been Stars and Stripes, with one or two stripes hanging, all the rest shot away. It was a strange feeling to be so intensely happy and triumphant, and yet to feel like crying. . . . Grant looked so bashful and modest with his little boy sitting on his lap—it was touching to see him."

Henry Adams was less sympathetic. He does not seem to have met Grant until after the victorious general had become President. "First and last," as he observed in the *Education*, "[Adams] saw a dozen Presidents at the White House, and the most famous were by no means the most agreeable, but he found Grant the most curious object of study among them all." He puzzled over Grant's intellectual efforts as though the President were some kind of turtle. Worse yet, to the fastidious historian, was the President's version of social discourse, "as when he seriously remarked to a bright young woman [perhaps Clover?] that Venice would be a fine city if it were drained." Such awkwardness might have been tolerable if the Adamses could have accepted the general principles of human fallibility, but they looked for evidence of Darwinian improvement. And this prospect of improvement was all too obviously a hallucination. "That,"—as Adams began one of the most passionate sentences in the *Education*—"That, two thousand years after Alexander the Great and Julius Caesar, a man like Grant should be called—and should actually and truly be—the highest product of the most advanced evolution, made evolution ludicrous. . . . The progress of evolution from President Washington to President Grant, was alone evidence enough to upset Darwin. . . . [Grant] was archaic and should have lived in a cave and worn skins."

Part of this anger undoubtedly is that of a political reformer thwarted. The Adams family tradition of governing the nation did not abruptly end with John Quincy, for Henry's father, Charles Francis, the former Congressman and minister to England, was a serious candidate in the Presidential campaign of 1872. Until almost that time, Henry Adams thought that he could influence political events by his talents as a journalist, crying out against such scandals during Grant's first term as the connivance by some figures close to the President in Jay Gould's attempt to corner the gold market. In due time, most Washington jour-

nalists learn the futility of such ambitions, but sometimes their wives are more reluctant to give up dreams of power. "My fiancée, like most women, is desperately ambitious," Adams wrote rather maliciously to one of his friends during his father's attempt for the nomination, "and wants to be daughter-in-law to a President more than I want to be a President's son."

All these matters eventually became, as they say, irrelevant. The American people wanted Grant. He carried all but six states in the 1872 election, and so the traditional corruption continued. The St. Louis "Whiskey Ring," which defrauded the government out of millions of dollars in taxes, enjoyed the patronage of Grant's personal secretary, Colonel Orville E. Babcock. The Secretary of War, General William W. Belknap, took a kickback for an appointment in the Indian trade. The Navy Department, the Interior Department, the Post Office—everything was for sale. There was no room in Washington for the proudly incorruptible Adamses. They could only protest.

The house where Clover killed herself on a cold, bleak Sunday in December—by drinking some of the potassium cyanide that she used in her darkroom—that is gone now, vanished, destroyed. And so is the nearby house that she was getting ready to move into, the home that had been designed by Henry Hobson Richardson. And such is the impermanence of American buildings that the stone hotel that replaced it on this corner of Lafayette Square has itself become a kind of antique, probably destined for eventual destruction as an anachronism or for preservation as a monument.

"Is there anybody here who can tell me about the history of this place?"

"It's all over there," says the gray-haired man behind the reception desk, "over there on that plaque behind that pillar."

The plaque is obscure enough. It provides a photograph of Richardson's turreted chateau. Then it adds, with all the artificial language of artificial inevitability: "When the old homes disappeared and the hotel rose on the site it was only natural that it should be the Hay-Adams House."

And somewhere not far from here, unmarked, is the spot where Henry Adams, on climbing the stairs to ask Clover whether she wanted to receive a visitor on that December day, "was horrified," according to the Washington *Critic,* "to see her lying on a rug before the fire, where she had fallen from a chair. He hastened for assistance, after placing her on a sofa, and . . . the physician stated that she was dead."

"How often we have spoken of Clover as having all she wanted, all this world could give, except perhaps children." That expression of bewilderment, written shortly after the suicide by Mrs. Alexander Whiteside, was the common view among Clover's friends. Her marriage, her entire life, had seemed such a paradigm of what a well-bred and well-educated Boston woman of the period might properly consider happiness, that nobody seemed able to offer any explanation for the sudden act of self-destruction. The only acceptable answer was that Clover, like a latter-day Ophelia, had fallen into a profound melancholia over the death of her father in April of that year, and that this melancholia, perhaps exaggerated but at least comprehensible, had driven her to desperation.

On reflection, though, it is difficult to accept such a simple explanation. Ophelia is a literary creation, after all, and she was further afflicted by the disappearance of her brother and the apparent madness of her lover. Could even the most self-effacing of Victorian daughters, then, have been so frail of spirit that the unavoidable death of a septuagenarian father would have led inexorably to suicide?

Maybe there are some clues to be found in the vast archive known as the Adams Papers. The building that houses the Massachusetts Historical Society, at 1154 Boylston Street in Boston, is worthy of its name and address. It is a weighty structure of granite blocks and yellow bricks, fluted pillars and black iron balconies. A buzzer opens the heavy door to the empty foyer where marble busts and muted paintings gaze blindly at the intruder. Here lie the Adams Papers, more than 300,000 pages of them, a collection that reflects the family's intense determination to commit its views to paper and to save all that paper as evidence for the verdict of history. The journals and letters and documents range from John's Promethean warnings to the future ("Posterity! You will never know how much it cost the present generation to preserve your Freedom!") to Henry's bemused contemplation of the

In a world of many diverse opinions, there's consensus on the taste of our scotch:

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past ("I have been amusing myself with constructing genealogical tables of my own and my wife's ascendants to the eighth generation, at which stage not less than 128 grandfathers and grandmothers have to be waved on in a straight line").

Scholars have been working at these collected documents for more than 20 years, and some 600 reels of unedited microfilm copies have been distributed to other libraries around the country. Twenty volumes of the most important papers already have been published by Harvard's Belknap Press. Over all this scholarly industry the Adams family still keeps a watchful eye. Until recently, the president of the historical society was Thomas Boylston Adams, a member of the sixth generation descended from John and Abigail. "The fight never stops," according to Adams, who campaigned unsuccessfully for the Senate as an anti-Vietnam War candidate in 1966. "There'll always be the establishment and the rebels. I hope our family will always be on the side of the rebels."

"Cleveland is safely installed"

It is a hope that might have surprised Clover, who, as an Adams in-law, earned the right to have her surviving letters maintain a small place among the 300,000 pages. In contrast to Henry, who wrote straight up and down and formed each fat, round letter with meticulous neatness, Clover scrawled letters that look bold and agitated, even a little violent. She began initial Ts with a decisive downward slash, crossed with a stroke as long as an entire word. There may be assertiveness in that handwriting, but the extent of the Adamses' rebelliousness during the last year of Clover's life consisted largely in their voting for the Democratic Presidential nominee, Grover Cleveland, against the purportedly corrupt James G. Blaine. In the penultimate letter of the series that she wrote to her father almost every Sunday for the 13 years of her marriage, Clover began by reporting from her house on Lafayette Square that "Grover Cleveland is safely installed over the way." There follows, then, a characteristic sketch of Cleveland's inauguration: "This entire city looked like a gigantic tulip bed" as she rode her horse Daisy to a special vantage point near the military reviewing stand. "The colored regiments were very fine—" she continues, "one especially in high bearskin caps. . . . One band would pass playing 'Dixie' & the next playing 'The Union Forever, Huzzah, boys! Huzzah!' & 'Marching through Georgia' & everyone looked gay & happy & as if they thought it was a big country & they owned it. . . ."

The first Democratic President in 24 years was supposed to bring reconciliation and reform, and Clover's last letter to her father is full of the Adamses' reborn hopes for political influence. The new Secretary of the Navy—"tall, dark, good-looking with a keen, intelligent, very ambitious face"—has just been to the house to drink tea and admire the watercolors. And so has Jim Stetson, "one of Cleveland's bosom cronies, a clever young New York lawyer. They had just come from the White House. It appears that Mr. Cleveland is a 'mugwump'. . . . The old party hacks are so full of wrath at the mugwumpish tendencies of appointments that it makes one hopeful. . . ." But she ends by saying: "Take care of yourself. We are both awfully used up—with colds & can't get rid of them." Within a few days of that last letter, Dr. Hooper's angina pectoris became sharply worse, and Clover went to Boston to help nurse her father through his last month.

The few remaining letters in which Henry describes Clover's state of mind after her father's death display a laconic tone that might be attributed either to his sense of privacy or to his unawareness of the depths of her misery. To Sir Robert Cunliffe, during Clover's last month, he wrote mainly about politics, but added: "My wife, who has been as it were a good deal off her feed this summer, and shows no such fancy for mending as I would wish, joins me in sending warm love." And to John Hay, during that same month: "We are still in poor state and unfit for worldly vanities. I see

Taken in 1869, this tintype is the only existing full-face picture of Clover. She was then 25.

Quotations from the Adams Papers are from the microfilm edition, by permission of the Massachusetts Historical Society

little or no one." The only known letter that Clover herself wrote during this period, destined for her sister Ellen but never sent, absolves Henry of any responsibility for her sadness and yet implies a despair and self-abnegation far deeper than the sorrow over her father's death. "If I had one single point of character or goodness I would stand on that and grow back to life," she wrote. "Henry is more patient and loving than words can express. God might envy him—he bears and hopes and despairs hour after hour. . . ."

Ten days after Clover's suicide, Adams wrote to E. L. Godkin: ". . . at least I got out of life all the pleasure it had to give . . . for twelve years I had everything I most wanted on earth." And to another friend, later: ". . . the only chapter of one's story for which one cares is closed forever, locked up, and put away, to be kept, as a sort of open secret, between oneself and eternity. . . ." But after that, for the next 30 years, he never mentioned her name.

Many years later, when one of Henry Adams' friends was writing a sonnet about the Saint-Gaudens statue, the historian quoted to him two sentences from the Book of Ezekiel: "Son of man, behold, I take away from thee the desire of thine eyes with a stroke yet neither shalt thou mourn nor weep, neither shall thy tears run down. So I spake unto the people in the morning: and at even my wife died."

If the letters in the archives do not surrender their secrets easily, are there at least a few portraits that might be studied?

"I know of only one surviving photograph," says one of the librarians who guard the Adams Papers, "though Mrs. Adams herself was a gifted photographer and took many portraits of her family and her friends."

"You mean that one of her on the horse?"

"Yes, in the collection of her letters."

It is a tintype that dates from 1869, when Clover was 25. It shows a small (she was only five feet two) and rather dour-looking young woman sitting side-saddle on a horse. Her dark dress extends from her tightly buttoned white collar down to a point well below her feet. A white hat shaped like an inverted pie tin tilts forward over her face so that nothing can be seen except two short tufts of dark brown hair, a straight nose, and a thin, unsmiling mouth.

"But that's a terrible picture. You can hardly tell what she looks like at all."

"Perhaps that's the reason why it has survived," the librarian says.

Adams hated being photographed or painted. Clover's niece Mabel Hooper made this watercolor of him in his Washington study about 1894. He tore it up (note white lines). Years later he returned pieces to her.

December 1, 2 and 3:

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4. Overall Exterior	34	16
5. Interior Styling	25	25
Ride		
6. Riding Comfort	33	17
7. Handwriting Test	27	23
8. Quietness	35	15
Driving		
9. Cornering Ability	28	22
10. Right Front Visibility	35	15
11. Parking Brake	36	14
12. Windshield Washer Operation	48	2
Quality		
13. Door Solidness	34	16
14. Carpeting	40	10
15. Upholstery	24	26
16. Sun Visor	30	20
17. Stereo Performance	37	13
18. Trunk Carpeting	48	2
Convenience		
19. Door Handle Operation	38	12
20. Rear Door Window	48	2
21. Glove Compartment	49	1
22. Window & Door Lock Controls	35	15
23. Ash Trays	23	27
24. Assist Straps	21	29
25. Front Center Arm Rest	46	4
26. Key Design	45	5
27. Interior Lighting	41	9
28. Spare Tire Convenience	47	3
Six Passenger Comfort		
29. Seating Comfort	43	7
Trunk Capacity		
30. Spaciousness/Convenience	48	2
Superior overall	**37**	**13**

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By Terry Berger

'Tulipomania' was no Dutch treat to gambling burghers

An exotic plant called a tulip stirred 17th-century Hollanders to hectic bidding at soaring prices. Then came the crash

In the early 17th century, at about the time the Massachusetts Bay Colony was getting its roots down, a strange craze took place in Holland. The Dutch started speculating in tulips. A sort of tulip fever developed which rapidly turned into what has been called "tulipomania." Before finally subsiding, this strange seizure brought all of Holland to within a stone's throw of bankruptcy.

The Netherlands at that time had just the right atmosphere for speculation. Dutch overseas trade was on the rise. Gold and silver flooded into the country, and commerce was active in various markets. The tulip, a relatively new plant in Holland, splendid to look at, with a wide range of varieties of different value, was a natural enough speculation for people interested—as the Dutch still are—in gardens.

The tulip had been virtually unknown in Western Europe until the 1550s, when Ogier Ghislain de Busbecq, Austrian Ambassador to Turkey, wrote back to Vienna describing flowers he saw being cultivated in the gardens of Constantinople. The Turks of the Ottoman Empire traded far and wide and undoubtedly used the lovely wild tulips of the Crimean Peninsula as objects for barter. They grew there profusely, though the true place of origin of the plant is probably in the northern Himalayas and the Pamir-Alai range where today's USSR meets China and Afghanistan.

Terry Berger writes children's books. Her latest, on living with parents' divorce, came out last March.

Dutch soldiers during their country's mania trample imperfect tulips which threaten

In the courtyard of an 18th-century Turkish sultan, masses of tulips bloomed every year. Women of the harem gathered against a background of tulips while the sultan selected the one who most took his fancy in a springtime celebration.

The Turks called the tulip *lalé*, using the same name as the Persians, who had long grown the flowers. Ambassador Busbecq called them "tulipam." Possibly he had misunderstood his interpreter, who likened the petals to the brilliant Turkish headdress called the "dulban" or turban.

the carefully fostered, sky-high price
of the guarded, potted aristocrat, at right.

Returning to Vienna, Busbecq brought tulip bulbs and seeds and dispatched them to Carolus Clusius, Prefect of the Imperial Medicinal Garden of the Austrian emperor, Maximilian II. Clusius received all extraordinary plants to arrive in Vienna.

Clusius, however, soon left Vienna to take charge of the medicinal garden at the University of Leiden in Holland. He took with him his own stock of bulbs and seeds and refused to part with any except at prohibitive prices. Tulips were seldom grown from seeds, because it took several years to produce good plants.

The story goes that envious Hollanders raided Clusius' garden one night, pilfering most of his plants and replanting them elsewhere. True or not, trade in tulips was soon flourishing between Turkey, Austria and then Holland. By the early 1600s all 17 Dutch provinces were well stocked with the flowers.

Even so, a few Dutchmen apparently were ignorant of the plants. A rich Dutch merchant, expecting a shipment of goods, received news of its arrival from a Dutch sailor. Pleased, the merchant gave the sailor a fine red herring to eat for his breakfast. As the sailor

was about to set to, he spied a bulb among the silks and velvets on the counter. Thinking it was an onion, he added oil and vinegar and ate it with his herring. By the time the merchant realized what had happened, it was too late. The sailor had eaten a Semper Augustus bulb, worth 3,000 florins—very nearly enough money to keep a whole ship's crew fed for a year.

Tulips became known and prized throughout Europe. Ordinary ones were easy to come by and not too expensive. Rare ones were something else. An unusual tulip was a status symbol and prices skyrocketed.

What made a tulip rare was a sudden change in color or pattern, a process known as "breaking." This happened without warning and, in fact, resulted from a virus. The variegated forms that followed were the ones that were prized. One of these was the Semper Augustus bulb, a red-and-white tulip, tinted blue underneath. Today, hybrid tulips are routinely raised, but since they must come from seeds, the process takes five to seven years. It is clear, then, that no hybridization was responsible for tulipomania—which lasted only three or four years. "Breakers," not hybrids, caused the madness. A broken breeder tulip bequeaths its variations to the bulblets that spring up beside it. Often these untried heirs drew prices as extravagant as the parent bulb.

At sky-high prices, bulb collecting seemed only a rich man's game. But people realized that any bulb in anyone's garden might suddenly change color and earn its owner a fortune. All one had to do was plant the bulbs and wait and see. If a beautiful flower did develop, it was taken to a florist where it was compared to other tulips. Soon it got talked about and people started suggesting names, sometimes a famous admiral's or general's. Wine was bought to celebrate the occasion and the news was spread around.

By 1634, tulip bulbs were no longer being bought for display or merely to possess them. They were bought to resell at a profit. For many the tulip trade became a full-time occupation. Large fortunes were invested and often the customary work and industries of Holland suffered neglect.

As the mania for tulips increased, gardens across Holland blazed with them. Everyone grew bulbs: noblemen, weavers, merchants, carpenters, chimney sweeps and servants. Tools were sold, jewels pawned and houses mortgaged to pay for them.

It was soon necessary to draw up a special code of laws to deal with the tulip trade. The public notary was supplemented by a tulip notary, and by 1636, the demand for tulips was so great that regular markets for their sale were set up on the stock exchanges of

These early tulips show varied patterns—striped or "feathered"—that appeared when plants "broke."

Huge prices for bulbs resulted. Early exotic examples recall today's lily-flowering varieties;

Amsterdam, Rotterdam, Haarlem and other towns.

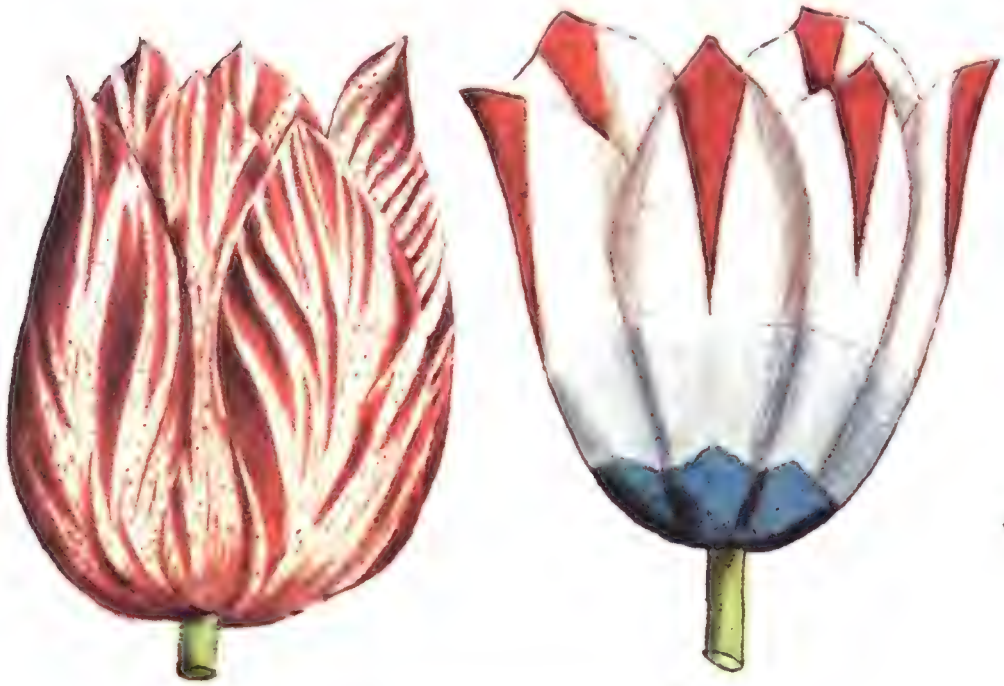
The real madness grew as bulb growing turned into bulb speculation. People bought signed contracts that promised deliveries of real bulbs at some future time. They were trading in futures—buying and selling pieces of paper. In the smaller towns the most popular tavern was used as the exchange. Clubs, formed to buy and sell bulbs, met in taverns. Laws and regulations were drawn up defining the way business should be carried on.

One method of buying and selling bulbs was by having an auction. Offers were written down up to the highest bid. The final offer was then called out four times and if the seller agreed to it, the bulb was sold. Another method was by arbitrators acting for both buyer and seller. The arbitrator for each of them fixed the value of the bulb and wrote it on both of their slates. If the buyer and seller both left the writing on their slates the deal was completed.

One of the sales made at this time, taken from a ledger kept during the craze, is listed below. Instead of money, the following goods, with values in florins, were exchanged for one Viceroy tulip:

2 loads of wheat, 448; 4 loads of rye, 558; 4 fat oxen, 480; 8 fat pigs, 240; 12 fat sheep, 120; 2 hogsheads of wine, 70; 4 barrels of 8-florin beer, 32; 2 barrels of butter, 192; 1,000 pounds of cheese, 120; a complete bed, 100; a suit of clothes, 80, and a silver beaker, 60. The total was 2,500 florins.

Whenever a member of the club bought or sold a bulb, he had to pay a levy known as "wine money." This fund provided club members with meat and pastry as well as wine and beer during auction times. Not surprisingly, the pleasant conviviality of tulip auctions attracted all kinds of people. Many simply



the six petals are more pointed than on usual modern box shape. A 16th-century traveler noted

"red lilies" growing in Turkey, and tulips may have been the New Testament's "lilies of the field."

Eighteenth-century cartoon of tulip trade in fool's cap was inspired by signs of Dutch mania for hyacinth.

came for the socializing and never intended to pay for any bulbs they may have purchased.

In the early days of tulipomania, sales took place between the end of June, when the bulbs were taken out of the ground, and September, the month for replanting. Later sales were held all year round. Delivery was promised for the summer but usually the bulbs never changed hands. A tulip fancier would buy a bulb from a dealer, supposedly to be delivered and paid for at planting time. When autumn came, the buyer would have to pay the original price even if the bulb had dropped in value. If it had risen, however, the seller would pay him the difference.

Rivalry flamed between tulip growers as each tried to outbid his neighbor for new varieties. Dishonest practices were rife. One story concerns a group of Haarlem florists who heard about a shoemaker in The Hague who had grown a black tulip. They persuaded him to sell it to them for 1,500 florins. No sooner did they own the bulb than they threw it on the ground and trampled it. The cobbler shouted in protest. "Idiot!" cried one of the buyers. "We have a black tulip, too, and chance will never favor you again. We would have given you 10,000 florins if you had asked it." The poor shoemaker could not be consoled. Wretched and shocked, he took to his bed and promptly expired.

By the early part of 1637, the weight as well as variety of bulbs determined value. They had to be weighed before they were sold. The unit of weight was called the *aas*—about a grain. It took 200 *azen* to make a third of an ounce. One Semper Augustus bulb weighed 123 *azen* and was sold for $4,600 immediately and two dapple-gray horses, a new carriage and accessories to be delivered in four weeks.

Tulip prices continued to rise. The Dutch were convinced that wealthy people the world over would pay whatever they asked, and for a while they were right. At last, however, people began to see that this folly could not go on forever. Some started adding clauses to their contracts preparing for the time when it would end. As a result, confidence in the market started to drop.

Moreover, people were beginning to get tired of

Painting of the period, also allegorical, shows monkeys carrying on trade in tulips.

buying and selling tulips. To end their involvement with the bulb market, they stopped dealing in paper and put real bulbs on sale. Tulip bulbs soon flooded the market, more and more people wanting to sell, while fewer and fewer wanted to buy. On February 3, 1637, a buyer paid 1,000 florins at an auction for a bulb which had cost the seller 1,250. This ended trade at one market. Though other sales were at first unaffected, the panic quickly took hold. Prices of bulbs fell immediately and never rose again. The tulip market had crashed spectacularly.

Crafty dealers tried to regain confidence by staging phony auctions, but the people were not deceived. There was no easy way to reinflate the burst bubble. Defaulters were announced day after day, and many families were ruined. Thousands found their only assets were a few bulbs for which there was no demand at any price.

Tulip holders held public meetings and formed an association which elected delegates to a national assembly. The assembly decided that all contracts made before a certain date had to be honored. But the contracts failed to satisfy the public, for they couldn't be enforced. People were saying, "When my buyer pays me, I will pay you; but my buyer is nowhere to be found." Lawsuits flooded the courts.

Holland was at the brink of bankruptcy. The Court of Holland declared that vendors who could not get purchasers to pay might dispose of bulbs as best they could. As a result, most people accepted between five and ten percent of the contracted price as a settlement.

And so tulipomania came to an end. Trade began to resume a more normal course. It took many years, however, for the Dutch economy to right itself. The mania had left deep scars on the country and on its people. Yet the tulip remained a favorite in Holland, and growing bulbs for export became the solid business that it remains today.

Tulips may have reached the United States as early as 1620, for they may have been brought by the Pilgrims who had been living in Leiden (SMITHSONIAN, November 1976). It seems likely that these first permanent English settlers in New England brought from Holland the seeds of certain crops along with tools

and possibly copies of the wonderful herbals that Dutch botanists were then printing. In a chronicle of *The Planters of the Commonwealth in Massachusetts: 1620–1640* it is written that the Pilgrims planted "garden seeds" in the spring that followed their first winter at Plymouth.

Subsequently, tulips appeared in the garden of Peter Stuyvesant, governor of Dutch New Amsterdam (later New York), and in the Dutch farms that dotted Long Island and the banks of the Hudson. They also graced Colonial Williamsburg. Thomas Jefferson referred to them in his garden book—a calendar for planting them and entries ordering them for the grounds at Monticello.

Today, tulips can be found throughout the United States. The gardens at the White House in Washington, D.C., have some remarkable beds. Marvelous color variations occur here, but now are the result of careful hybridization with full attention to genetics. To celebrate our recent Bicentennial, the people of the Netherlands and the Holland Bulb Industry officially presented America with a million bulbs.

Could a "new" flower ever be found that could catch the fancy of people in the way that tulips did centuries ago? Early in the 18th century in Holland, the introduction of the double hyacinth caused some of the same ominous signs. The Dutch government, fearing a recurrence of the mania, squelched it immediately. A cartoon published then described the years of the tulipomania as the time "when one fool hatched another and the people were rich without property and wise without understanding."

Glorious flower beds in today's Netherlands. Although mania ended in 1637, planting continued.

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By Paul E. Desautels

Jade is a mystery 4,000 years old that transcends science

Collectors prize the legendary gemstone of ancient China and Central America, even knowing a carving may be something else

The ancient and noble name of jade is not the label for a specific mineral, but for the concept of translucent, tough, often but not always green stones that for millennia have been carved and polished into works of art around the globe. In spite of the best efforts of today's mineral scientists, jade remains a problem. The Chinese, champion jade lovers of the world, were apparently just as confused 4,000 years ago as we are now about these highly prized stones. The word "jade" has been applied through the centuries to almost every kind of green or near-green, or other colored, stone that carves and polishes well.

The concept has been around so long and has been so intimately embedded in many cultures that its exposition often seems more a matter for the student of history, tradition, esthetics or art than for the scientist. Science may struggle to tighten its definitions, but nonmineralogical, cultural, artistic and gemological concepts of jade are likely to remain as they are for untold years to come.

Most authoritative texts today define jade either as *jadeite*, one of the pyroxene family of minerals, or as *nephrite*, a variety of one of the tremolite-actinolite mineral series. Nephrite must have the further qualification of an entangled, finely fibrous texture, a quality not found in any of its brother and sister tremolite-actinolites.

The ancient Chinese, getting an early start on the confusion, used their term for jade (*yü*) to cover many carvable rocks and mineral species and varieties including jadeite, nephrite and agalmatolite, as well as bowenite and other varieties of serpentine—sometimes even marble. Various modifying names were given to *yü* to indicate differences in color, texture, pattern and place of origin, which contributed further to the looseness of the concept. For example, the name *fei-ts'ui*, meaning kingfisher, was later given to a beautiful green Turkestan jadeite with color reminiscent of the feathers of an Oriental species. After several thousand years of confusion, the problem persists and there is no universal agreement about which materials are to be defined as jade. In spite of tradition, however, and after centuries of not knowing, or not really caring, there has been a strong drift toward excluding all other species in favor of nephrite and jadeite as true inheritors of the name *yü*.

And what about the characteristics of jadeite and nephrite, assuming that we are destined to accept both of them as *chen yü* or true jade? The definitions were first firmly established in 1863 when Alexis Damour, a French scientist, published his work on the dual material nature of carvings looted by English and French armies from the Imperial Summer Palace near Peking during the T'ai P'ing rebellion. It was he who assigned the name nephrite to the old Turkestan-Sinkiang Province type of jade, and jadeite to that sort similar to the pieces brought by the Spanish from America.

Silicates of many colors

Jadeite, as it turns out, is a sodium aluminum silicate. Its colors range through pink, mauve, blue, gray, white, red, orange, yellow, black and green, the most highly prized being a vibrant and bright green caused by the presence of a very small amount of chromium. It is the harder of the two species, its vaunted toughness coming from its texture of tiny, tightly interlocking mineral grains. Nephrite, a calcium iron magnesium silicate, also occurs in a range of colors. It exists in hues of yellow, brown, gray, white and, rarely, blue or black. It also commonly sports shades of green from almost blackish to a clear light lettuce green, all of which differ from the emeraldlike greens of jadeite.

Unfortunately, contrary to persistent gemological folklore, all the obvious characteristics of the two jades tend to be so much alike that there is no simple way to distinguish between them. Their specific gravities are similar, and their luster differences are subtle, frequently depending on the quality of the surface polishing. Both are cool to the touch, as are numerous other

A modern carving from China epitomizes the allure of jade. This piece was carved from Burmese jadeite.

similar-looking mineral species. Occult methods of identification have proved inconsistent and worthless. In short, without suitable laboratory tests, the certain identification of jadeite versus nephrite is often impossible. Without question, enormous numbers of the world's carved objects in circulation are wrongly identified as jade of either sort, or if they *are* one of the two, they are identified as the wrong one.

Whether jadeite or nephrite, the availability and knowledge of these ornamental stones date back through several cultures to a time where history becomes educated guesswork. In the Orient, jade carvings offer a nearly indestructible record of the ebb and flow of Chinese civilization, its changing philosophies and governments and their reflection in the activities of the people. Most of the recovered objects come from unscientific, uncontrolled excavations, from grave robbings, and from the unlabeled accumulations of private collectors. Platoons of scholars have been kept busy for years trying to sort out artistic styles, symbolism and fakery. Their task has been further complicated because successive Chinese cultures have had a penchant for copying from their predecessors. As a case in point, examples are known of 12th-century carvings which are fine copies of objects dated as far back as several centuries B.C. Today Hong Kong carvers are turning out "genuine antique" jade carvings as fast as they can get raw materials. Be that as it may, history, philosophy, art and archaeology aside, the ancient true jade of China was nephrite, with jadeite coming in from Burma as late as the end of the 1700s.

Central America is the only other part of the world where carving-quality jadeite has ever been available in sufficient quantity to be a mirror of civilization.

Paul Desautels, curator of the Smithsonian's gem and mineral collections, has been a frequent contributor.

Jadeite mosaic death mask with shell eyes and obsidian pupils is from a Mayan temple in Mexico.

When the 15th-century Spanish explorers arrived in America, their attention was attracted to the carved green *chalchihuitl* objects so highly prized by the native people. Expecting tribute of gold and later emeralds, when they learned of them, the Conquistadors were surprised to be offered this green kind of stone instead. Like that of Burma, this jade turned out to be a type of jadeite. Unlike that of Burma, however, its composition is a highly variable, intimate mixture of mineral species jadeite with diopside, a calcium magnesium silicate, sometimes albite, a sodium aluminum silicate, and sometimes acmite, still another sodium aluminum silicate. Superficially the different mixtures are indistinguishable from each other, and it is even possible to find jadeite-looking carvings that contain only the accessory species and little or no jadeite itself. With the collapse of the native cultures following Spanish invasion, knowledge of the sources of Central American jade was lost for centuries until their rediscovery in Guatemala in 1955. The sources in Burma, however, have produced fine jadeite continuously from the time of their discovery centuries ago.

Nature has been more profligate in strewing the

globe with nephrite deposits. The Maori of New Zealand in their thousand years of jade-linked history, before the advent of Western explorers, were well on their way to developing their own jade-carving technique, art and symbolism based on *pounamu*, the local nephrite. A three-foot boulder and large translucent polished slab of New Zealand nephrite sitting at the entrance of the Smithsonian's Gem Hall attest to the beauty of the material available to them. When the Maori came to New Zealand from elsewhere in Polynesia, they already knew of jade and its desirable working qualities. The rediscovery of ancient nephrite workings on an island off the coast of New Guinea and other places gives evidence of the bases of supply for an ancient commerce in jade throughout Oceania.

Thousands of miles away, in the Gur-Amir tomb in Samarkand, the remains of Tamerlane, the Mongol king, were laid to rest in 1405. On his crypt lies a seven-foot, eight-inch slab of polished nephrite weighing 1,800 pounds. The jade came from the ridge of Raskendaria in Yarkand, the Sinkiang source of the same nephrite that China had used for centuries. Had Tamerlane's Russian territorial holdings been more extensive and better secured, and if distant Samarkand had not been his capital, there is a good chance his jade tomb slab would have been from Russia's Sayan Mountains instead. At that site, about 1850, J. P. Alibert, a mining engineer, found large nephrite deposits on the banks of the Onut River near Batugol. There is a 1,156-pound polished boulder of this jade in the British Museum recording the discovery.

Unfortunately, as is always the case when valuable materials are concerned, there is a strong possibility that someone has purposely used a less valuable material as a deceptive substitute. Jade has many plausible imitators, and all have been put to use. Almost always these substitutes are green or near-green, since stone of this color seems, in the popular mind, to be a more believable replacement for true jade which, of course, is only sometimes green. Some of the substitutes are so good that even jade experts are habitually very careful with their identifications.

Substitutes and imitations

The commonest substitute is serpentine, a magnesium silicate, which occurs in the same kinds of deposits as jade and comes in several attractive shades of blackish green through emerald green to yellow green. It carves well and easily and some of it has a translucency approaching transparency. It can be a beautiful stone indeed. There is a variety of serpentine named bowenite, or sometimes Soochow Jade, which is harder than most serpentines, but its hardness still does not reach that of jadeite and nephrite. Even so, carvings of

Good enough to fool a nonexpert, this Chinese-style carving is in serpentine, an often-used jade substitute.

None of these objects is green, yet they are all jade, in this case jadeite. Forgers usually stick to green.

such materials can, at times, be very difficult to distinguish from nephrite. Idocrase, a calcium aluminum silicate, is seldom confused with jade except for californite, which is a very compact greenish variety. Even a greenish, jadelike variety of garnet, a calcium aluminum silicate, named grossular or Transvaal jade, occurs 40 miles west of Pretoria, South Africa. Quartz with a gem name of aventurine, made green by myriads of tiny impurities of green mica flakes, turns up frequently in carvings as a credible jade substitute. Chrysoprase, fluorite, smithsonite, prehnite and amazonite are all common substitutes.

Your jade may be glass

The one thing common to all the materials discussed so far is that, true jade or false, all have been natural materials with which man has not tampered. As expected, however, there are jade imitations that owe their appearance to ancient and modern technology. The technique of dyeing stone, for example, has been practiced for centuries. With the advent of all sorts of new chemical dyes, it is now easier to enhance the color of white or off-white jadeite, converting it to a good "imperial" green. Dyed mauve jade seems to have a more stable color, not fading in heat or excessive light, but usually it is so intense in hue that it automatically draws attention to the possibility of forgery.

The ingenuity of jade forgers is not limited to substitution or dyeing. In the past a favorite trick was to prepare a stone by fastening a white jade top and a separate white jade bottom together with green cement. As long as the joining is hidden in a metal mounting, the deception is perfect. Less objectionable, perhaps, is the art of cementing a good green jade top to a bottom of poor jade or some other cheap substitute. The variety of glass and plastics now available has further stimulated the practice of fakery. Fortunately, these materials are so easily identified that only the very gullible will be deceived. Even the nonexpert can learn quickly to spot the tiny bubbles, mold marks or flow lines in glass seen under slight magnification. Plastics are soft, easily scratched and have relatively low specific gravities, so that they don't feel like rock when hand-hefted.

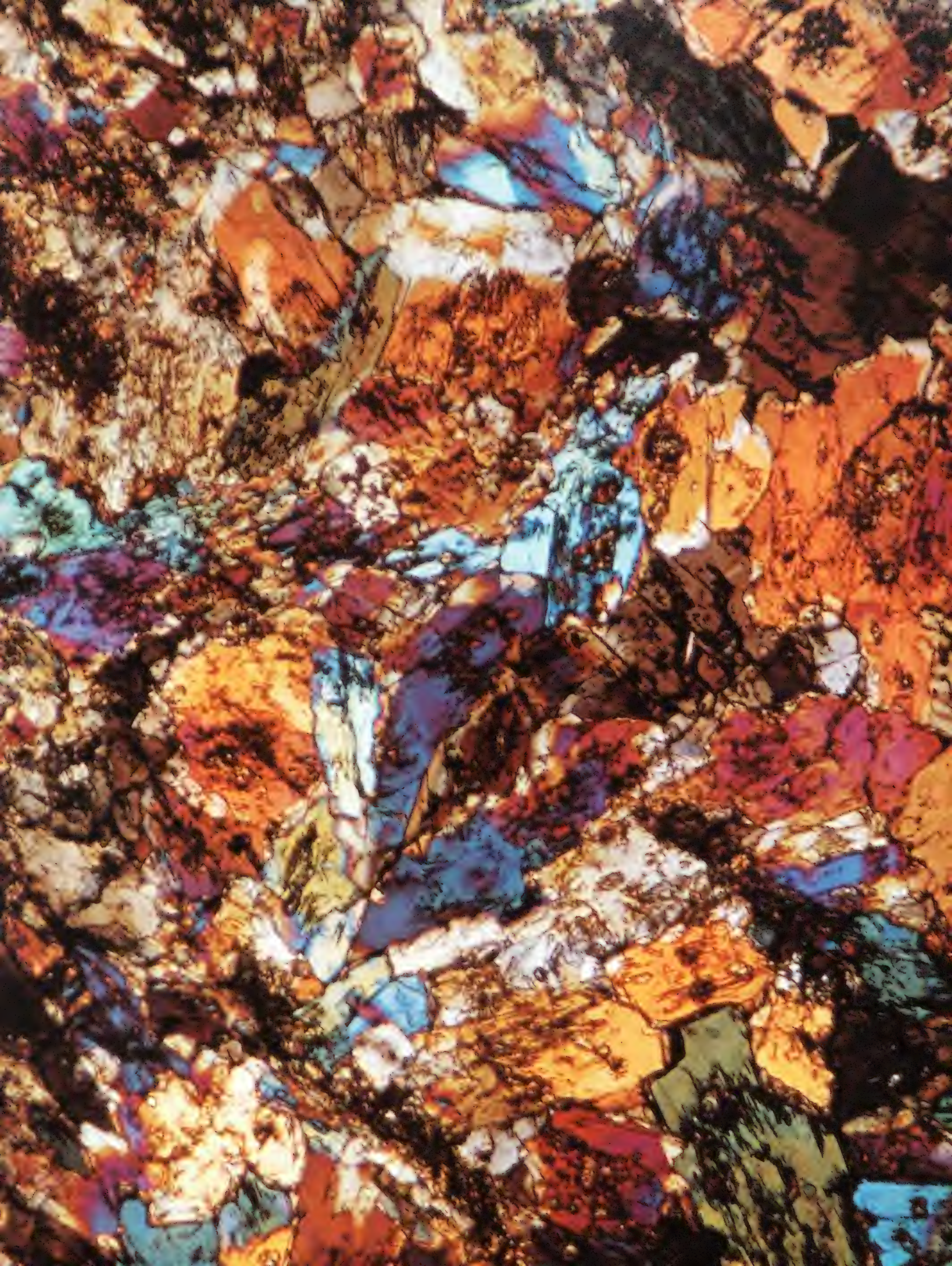
It would certainly simplify collecting and studying jade, and would reduce the number of pitfalls, if some easy way could be found to identify true jade. It would help if the jades from each source were obviously different. There are identification methods, but they are not within the reach of all. The mineralogist, petrographer and gemologist, with their polarizing microscopes, x-ray diffraction cameras and electron microprobe analyzers, can do it in a hurry (the pictures on the next pages show what jade looks like in polarized light). All others must develop patience and learn to live without precise definitions, following the lead of the ancient Chinese, or else rely on the opinions of authorities when available. The confusion about jade just has to be tolerated; denying ourselves the pleasure of owning and appreciating it is a poor solution to the problem. We may hope we have arrived at a scientific age when order can finally be brought to the chaos known as *jade*. But with too much knowledge of history, tradition, science and art, we might be adding even further to the burden of jade lovers a thousand years hence.

Jar and chained top, about a foot high, were all made from a single piece of Alaskan nephrite.

Olmec figure from Central America was carved from jadeite, then rubbed with cinnabar for highlights.

Micrograph, about 100 times life size, clearly shows the packed fibrous texture typical of nephrite.

This jadeite specimen, with characteristic interlocked crystal grains, is also a micrograph.



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VOLVO

The car for people who think.

By John H. Falk

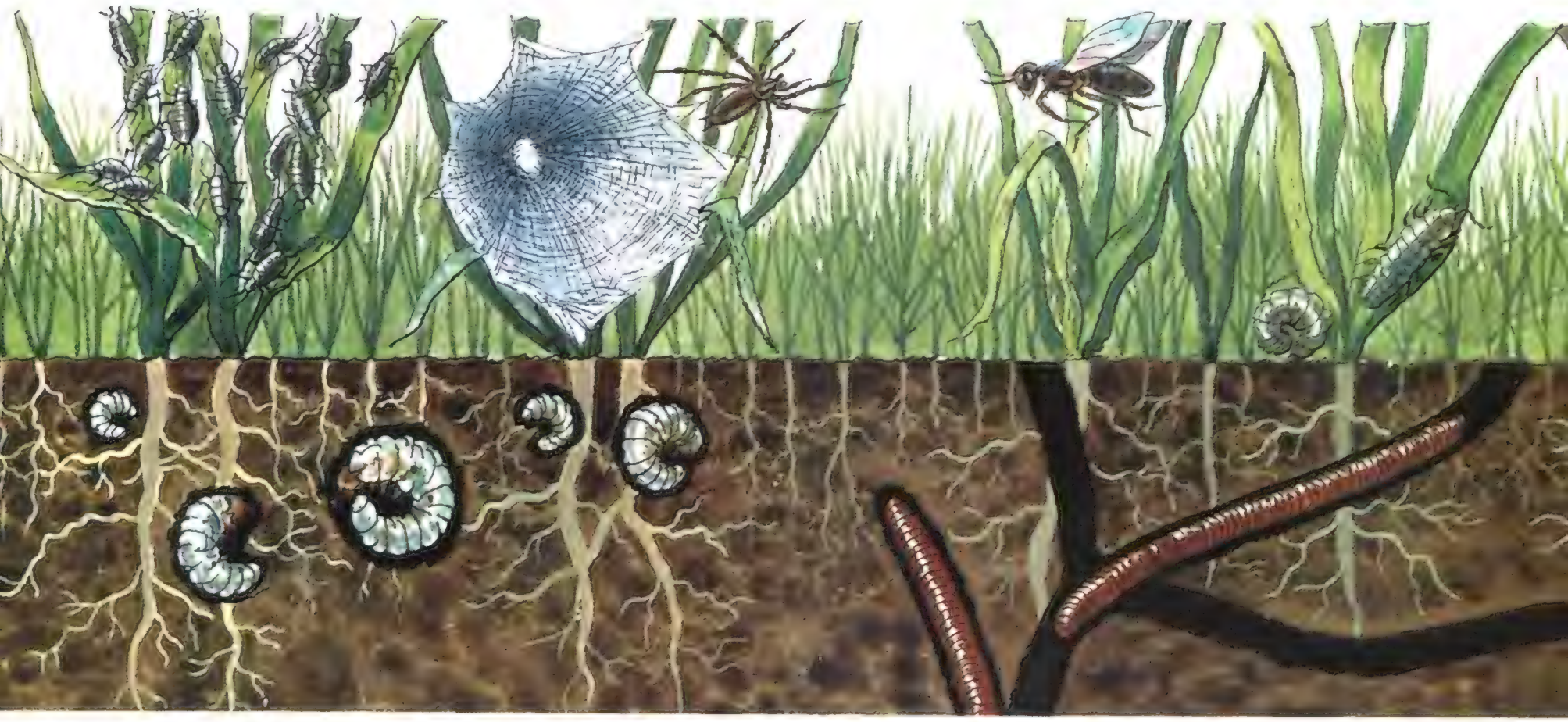
The frenetic life forms that flourish in suburban lawns

Our 'short grasslands' occupy 20 million acres and frustrate many homeowners, but the study of their ecology is neglected

Standing beneath an acacia tree, earliest Man surveyed his domain and saw a wide panorama of short-grasses, scattered trees and bushes (p. 92). While the landscape of East Africa has changed little in the last few million years, the natural landscape of much of the United States has been resculptured completely during the past 200 years. In many regions of this country, the vegetation now resembles an East African savanna more than the deciduous hardwood forests, the coniferous forests, or the tallgrass prairies of 17th-century America. I am talking about the millions of acres of city parks, golf courses and front lawns that dominate the landscape of every populated area of the country. In East Africa, the grasslands are maintained by herds of zebras, wildebeests and gazelles, and by perodic fires; in the United States, the short grasslands are maintained by weekend grazers using gasoline-driven "munching" machines.

More than 20 million acres of lawn exist in the United States, between one and two percent of the total land area. More lawns are created every day as forests succumb to the housing tract with its neat front yard of sod. From coast to coast, climate-specific races of fescue, bluegrass, zoysia and Saint Augustine are bred and their seeds (or plugs) sold in great quantities.

The lawn is an institution. The suburban homeowner worries over the brown spot in this corner of the lawn, or that bare spot under the elm tree, and



all desire the thick, green, smooth carpet of grass pictured in the magazines (and brought to perfection by the old guy at the end of the block who always seems to be puttering with his lawn). Some people look on their weekly lawn-mowing as a chore. For others it becomes a spiritual experience. For myself, as a biologist, lawns hold a different fascination.

While most of my colleagues trek off to Central American rain forests, South American cloud forests, or Arctic tundra in search of fodder for their biological curiosities, I ponder the neosavanna in front of my house. The lawn ecosystem can be found in virtually identical form anywhere in the United States (and in any other part of the world as well). It is an increasingly prevalent system, and yet its ecology is completely unexplored. Who are the grazers and predators of this system? Most important, how can we understand Man's impact as a manager? To answer some of these questions, I started studying lawns in 1971. By the end of 1972 I was ready to start a major one-year study of the ecology of my Walnut Creek, California, front lawn. In this study I used the flow of energy through and into the lawn system as a means of understanding the ecological dynamics of my lawn.

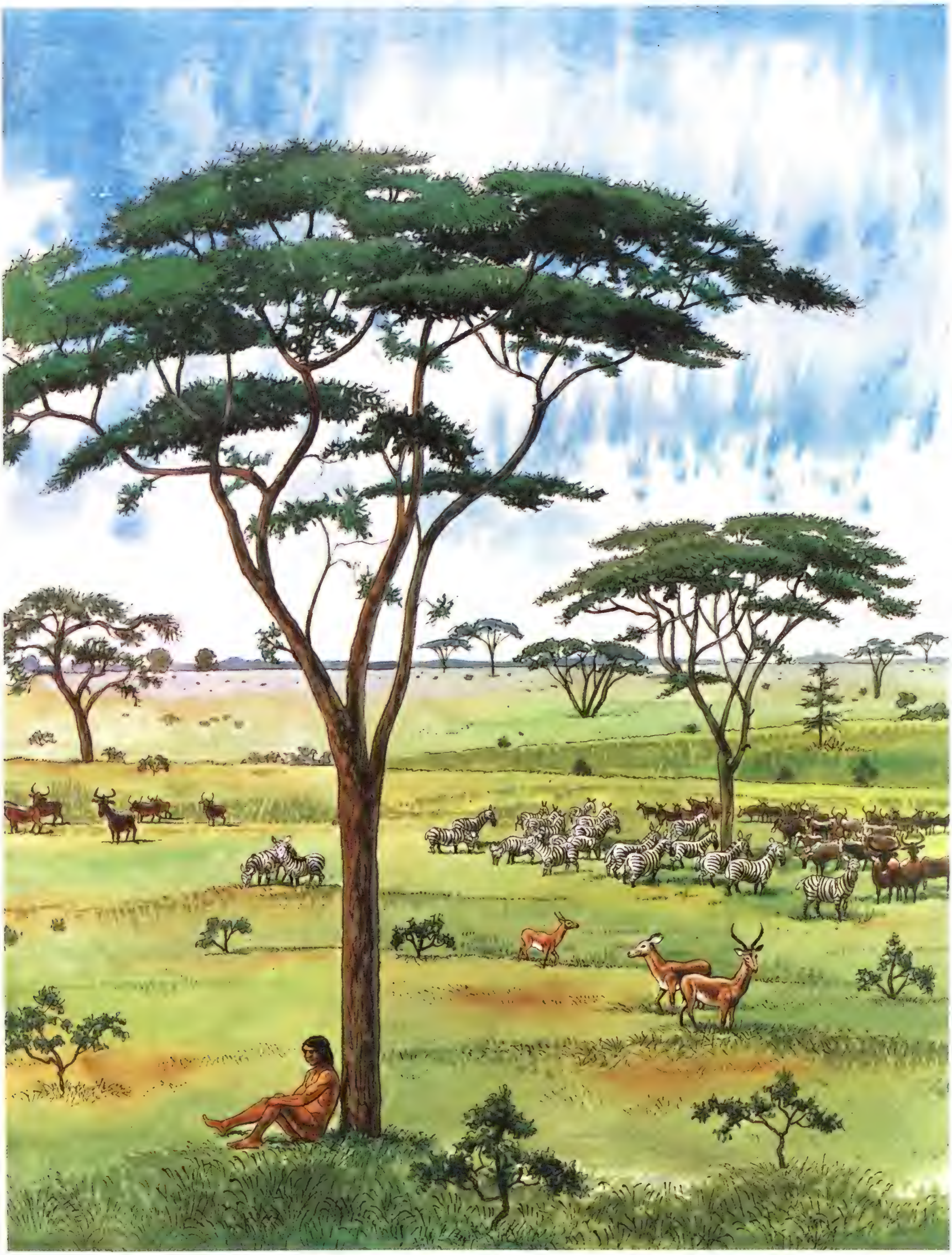
All living things need to collect and store energy to survive. Plants receive energy directly from the sun, while animals consume plant energy directly or indirectly. Energy measured in standard units can be used as a common denominator to compare phenomena as diverse as a growing plant, a squirrel eating a false truffle, and a man mowing a lawn. Ecologists have measured forests, tundras, prairies and even abandonded fields, using as a yardstick the kilocalorie (1,000 times the one calorie contained in a diet soda).

In my study I attempted to measure, in terms of kilocalories (kcal) per square meter per year, all of the energy—human, animal or vegetative—that was expended on a typical lawn system. Owing to methodological complexities and time limitations, however, some major parts of my lawn's unique system, such as the trees, had to be excluded. Still, I considered all of the lawn plant species (including the weeds) growing in the 30-by-40-foot area. All of the animals using the lawn were considered also, from the insects living a few millimeters below the surface to the birds flying above, and including dogs, cats and people.

All in all, the cast of players was incredibly diverse. Most people think of lawns as being just "grass"—a two-dimensional green, undifferentiated swatch of plant material. However, an average lawn contains perhaps 30 to 50 different kinds of grasses and broad-

Dr. Falk, associate director for education programs at the Smithsonian's Chesapeake Bay Center for Environmental Studies, now studies lawns at home near Edgewater, Maryland.

Illustrations by James Lewicki



For millions of years East Africa's savannas have been as *Homo habilis* saw them, vast expanses of short grassland kept pleasantly parklike by grazing herds of animals and by intermittent fires.

leaf plants (weeds). My lawn was no exception. Three turfgrasses predominated—Kentucky bluegrass, red fescue and Chewings fescue. Yet, in what my neighbors considered to be a respectably "weed-free" lawn, I found such common weeds as crabgrass, German velvet grass, wood sorrel, bristly oxtongue, dandelion, thistle and scarlet pimpernel.

The faunal diversity was equally great. Snails, spider mites, isopods (pill bugs), spiders, earthworms, and well over 100 species of insects were there—leafhoppers, aphids, frit flies (as opposed to fruit flies), ants and a variety of small, insect-parasitizing wasps. I have found these same kinds of animals living in lawns from Maine to Texas, California to Maryland.

A dozen species of birds, ranging from mourning doves and brown towhees to starlings and house sparrows, utilized my lawn for food gathering. They too were observed and their energy intake assessed. Squirrels, dogs, cats and people made use of my lawn as a convenient pathway, stalking ground or as a waste-dumping area. All of these activities were recorded, converted to kcal per square meter per year, and figured into the grand equation of energy loss and gain.

Every weekend the mower would roar to life, cropping the blades of grass to a culturally and horticulturally predetermined height. I tried to be a typical conscientious suburban homeowner. During the spring and summer I mowed my lawn every week, tapering off to once every two weeks in the fall, and finally once every month or two in the winter. I used a grass bag to collect my clippings (which were either composted or used as mulch on my vegetable garden or flower beds), and I raked up any leaves that had fallen between mowings. Irrigation is a must for lawns in California owing to the Mediterranean climate—wet winter and bone-dry summer. Consequently, as recommended, I watered deeply once or twice a week starting in late spring and continuing until relieved of my chore by the fall rains. I fertilized once in the fall with steer manure and once again in the spring.

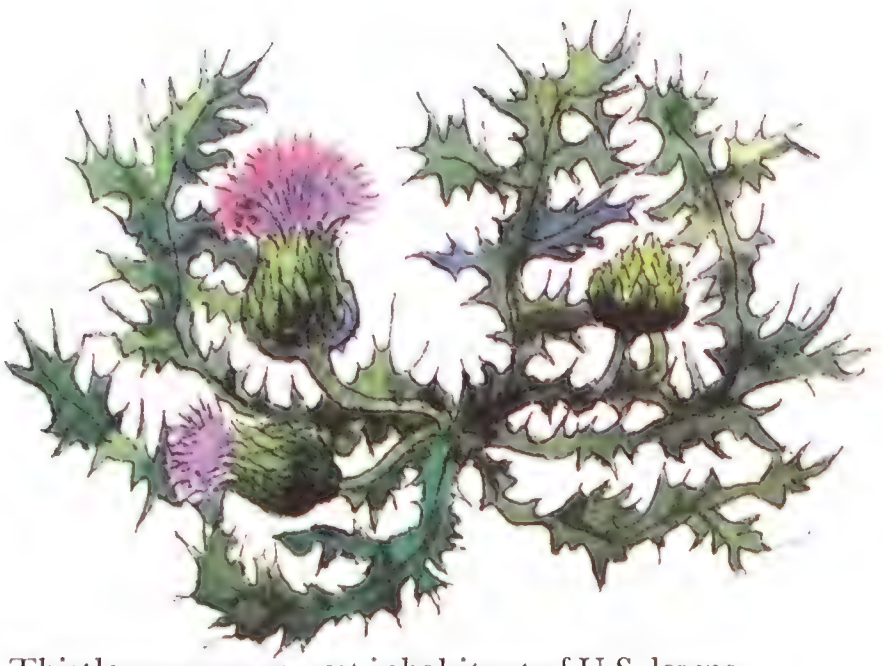
Through it all, the duration and intensity (length and degree) of the physical effort of myself and my wife were noted. Of course, had we ever stopped playing mechanized sheep, natural succession quickly would have reclaimed my front yard and caused my lawn to cease being a lawn. Mower gasoline consumption, fertilizer and the quantities of water used for irrigation also were measured. Even the act of moving the sprinkler from one part of the lawn to another was noted—who did it, and how long it took.

By the end of the year an immense quantity of data had been collected. As the picture of the energy flow through the system began to emerge, it included many surprises. The first surprise was in the lawn itself. Just looking at a two-inch carpet of grass, one might not imagine that it forms one of the most productive

Crabgrass, the persistent enemy of fine lawns, is killed not by human curses but by chemicals and digging.

Called "lion's tooth" for its sharply dented leaves, the dandelion must be dug up by the taproot.

One form of oxtongue, named for tonguelike leaves, is a misplaced (in lawns) wild flower.



Thistle, a common pest inhabitant of U.S. lawns, can grow from two inches up to four-feet tall.

Chickweed, often a delicacy to birds, extends stems that mat and form dense masses, choking grass.

terrestrial plant communities in the world. Everyone knows that grass grows fast, but I certainly would not have predicted that my front lawn was producing more new plant material in a year than a tallgrass prairie or a coniferous forest of comparable size!

Turfgrass species such as Kentucky bluegrass concentrate most of their growth into an area a few inches above and a few inches below the ground. They send out a network of tillers and rhizomes which create the matlike growth we have come to expect from a good lawn. In one turfgrass study, mowing at a height of two inches removed only three percent (by weight) of the new grass growth. The net result of mowing is the concentration of the grass plant's energies into increasing vegetative growth, as opposed to reproductive growth of flowers, flower stalks, fruits and seeds. Therefore, although lawns are usually kept short, they provide a bountiful resource for animal consumers.

The next surprise came in the analysis of the role of the consumers in the system, especially the insects and the birds. As already mentioned, the lawn supported a large population of insects and other assorted invertebrates, which in turn supported an incredible number of birds. A dozen species of birds were recorded feeding on my front lawn during the one study. Brewer's blackbirds were the most plentiful, followed by redwing blackbirds and house sparrows. During the summer months, mixed flocks of 15 to 30 Brewer's blackbirds, redwing blackbirds, starlings and house sparrows would swoop down on the lawn and spend anywhere from one to 55 minutes foraging for such morsels as lawn moth larvae or beetle grubs. The spring months were dominated by a breeding pair of scrub jays, while December, January and February

Wood sorrel grows up to 18 inches tall and forms seedpods that explode if one brushes them.

Scarlet pimpernel (its namesake, a romantic hero) closes its blossoms at the approach of a storm.

were shared by a pair of brown towhees and mixed flocks of white-crowned and golden-crowned sparrows.

In all, more than 500 kilocalories of food, 87 percent consisting of insects, were consumed by the bird visitors. This level of utilization (energy extracted per square meter per year) is 20 to 40 times greater than that recorded for natural grassland birds. Two major factors seem to explain the phenomenon. First, lawns are islands of food resources in a sea of concrete. Eighty to 90 percent of the habitat of a typical suburban bird is taken up by roads, driveways and rooftops, all of which support few insects. This fact alone would force suburban birds to concentrate their food seeking into smaller areas than those of their prairie counterparts. Even after accounting for this, suburban bird utilization still exceeds prairie bird utilization by a considerable margin.

In city and suburb, flocking species of birds predominate. Think for a moment of common city birds. They are mostly highly gregarious species such as starlings, blackbirds, house sparrows and pigeons. In the western prairie, meadowlarks, dickcissels, lark buntings and grasshopper sparrows stake out their breeding territories and flock foraging is less common. When food is distributed into widely spaced but rich patches, the trick for bird species is to locate the isolated patch. Once located, there is plenty for all.

By contrast, in areas such as the prairie, where food is uniformly but less densely distributed, solitary habits and vigorous territorial defense become the more advantageous feeding strategy. Compared with solitary feeding, flock feeding is a much more efficient way of extracting food from a given area and results in a larger quantity being removed per unit area per unit time. Thus, in my observations, the combination of a highly localized food resource, an easily searched habitat, and the use of a highly efficient feeding strategy such as flock feeding, would explain the high utilization of available food resources by suburban birds. The prevalence of lawns in a city or suburb probably correlates well with the density of the resident bird population.

Man, the manager, clearly emerged as the energy king of the lawn. With the help of my lawn mower, I "consumed" ten percent of the total net annual growth of the lawn. By comparison, all the other herbivorous animals I studied together consumed about one percent. Nonhuman scavengers consumed less than one percent of all the grass clippings and tree leaves that fell on the lawn. The manager/scavenger "consumed" in excess of 98 percent of the dead plant material with his grass bag and rake. In all, the total energy cost of human inputs to my little patch of lawn in a year was more than 22,500,000 kcal. Most of these energy costs were expended for irrigation or gasoline for the mower. Physical labor represented 2.5 percent.

A hidden cost to the system involved a net loss of essential plant nutrients (nitrogen, N; phosphorous, P; and potassium, K). The loss was created by removing grass clippings and tree leaves from the lawn to prevent thatch buildup (in which grass takes root in the debris instead of in the soil) or shading of the grass plants. This is considered good management practice, but the long-term impact is problematical.

Despite the addition of manure and inorganic fertilizer, I calculated that my lawn suffered a net loss of 1,580 grams of N, 530 grams of P, and 990 grams of K. My nutrient additions provided the lawn with imme-

diately usable N, P and K, as opposed to the locked-in nutrients of the removed clippings and leaves, which are released only after decomposition. Even assuming, though, that the N, P and K that I added remained within the lawn system rather than washing into a nearby stream, the net impact of my managerial diligence was a nutrient deficit which ultimately would take its toll unless corrected.

By comparison with my 1,865 kcal/m²/year lawn management input, the commercial raising of corn requires 715 kcal/m²/growing season. Corn needs an intermediate amount of energy subsidy for a commercial crop; tobacco (a more human labor-intensive crop) requires roughly 900 kcal/m²/growing season. Using this comparison, we could assume that for approximately the same amount of energy (kilocalories) needed to produce a nice suburban lawn, we could have a vegetable garden. Considering escalating food prices, increasing costs for lawn-mower fuel and fertilizer, and the scarcity of water in some areas, why don't we en masse convert lawns to gardens—like the Victory Gardens of World War II? Well, most people, no matter what the cost of tomatoes, would not replace all of their lawns with a vegetable garden. Nor would they allow their front lawns to revert to a more economical "natural" state.

Clearly, lawns are well entrenched in the psyche of our society. We all know that lawns are an esthetic plus, but why? To begin with, it is not just grass, but the smoothly rolling contours of a lawn, punctuated with scattered trees and a few well placed bushes that seem to satisfy us. Could we be striving to create neo-savannas in our own parks and front yards? Many anthropologists place the origins of Man in the short-grass savannas of East Africa one to three million years ago. The majority of Man's development as a species has occurred in this habitat. Man, like most of the smaller savanna animals, probably restricted his movements to the shortgrasses and avoided the tall-grass where predators could lurk undetected.

It would be extremely hard to prove that our present-day love affair with lawns stems from a desire to re-create our primeval environment, but to this biologist, it makes all the sense in the world. If you don't believe me, just go sit in a park one warm June afternoon, with your back against a tree, and listen to the birds singing as you survey the wide panorama of shortgrasses, scattered trees, bushes—and lawn.

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By Paul Goldberger

A triumph of style: one man's home and his collections

Eccentric in the extreme, but informed by exquisite sensibility, Sir John Soane built a unique mansion-museum in London

A modest neoclassical facade does little to announce riches and complexity of Soane Museum within.

In an age of dramatic museum expansion, Sir John Soane's Museum in London has played its contemplative part—by pushing through a wall and incorporating a few rooms in the town house next door. But it has chosen to ignore the related trend toward aggressive acquisitioning: except for a scant few pieces of furniture, the museum has not added an object to its collection since 1836.

It would thus appear that this small institution is somewhat out of the mainstream. In terms of big-time museology, it *is* quite far from the action but, in terms of its overall influence, the Soane Museum is potent indeed. For the museum's chief exhibit is its building, the house designed by the architect Sir John Soane for his own use in 1812, and it is increasingly being recognized as one of the triumphs of English architecture. Soane's intensely personal, brilliantly inventive set of variations on neoclassicism is bringing more and more visitors each year—and many of them are architects who are taking home lessons in space-making, light manipulation and unusual shape-making.

There are art objects to be seen—Hogarth's *The Rake's Progress* series and a rich array of Egyptian, Greek and Roman art and artifacts among other things—but few visitors come to the house at 13 Lincoln's Inn Fields with these in mind. They come rather for a look at a building which, as architect Charles Moore wrote recently, came from "a passion too strong to be constrained by conventional precedent or regular arrangements of space."

What makes the Soane Museum so special? Critic Ian Nairn once called it "as deep as St. Paul's dome is wide," as a way of trying to say that the essence of the building is its profound exploration into the nature of space. Soane was trained as a neoclassical architect and never rejected the classical forms—rather, he altered them, twisting and turning them to create dramatic space, unexpected mirror and light effects, and extraordinary interplay between inside and outside.

The front of the house, facing the pleasant park-like square of Lincoln's Inn Fields, gives only a hint of what the visitor will see when he rings the doorbell and is given entrance by one of several middle-aged gentlemen in green smocks who serve as attendants. The stone-and-brick facade has arched windows, statues, and two brackets which set it off from its neighbors, but these elements are "mere affectations . . . merely quaint," in the words of Sir John Summerson, the eminent architectural historian and, since 1945, the museum's curator, a position traditionally occupied by a distinguished scholar. This Sir John is less

Main space of ground floor is library and dining room (foreground); note the arches between rooms.

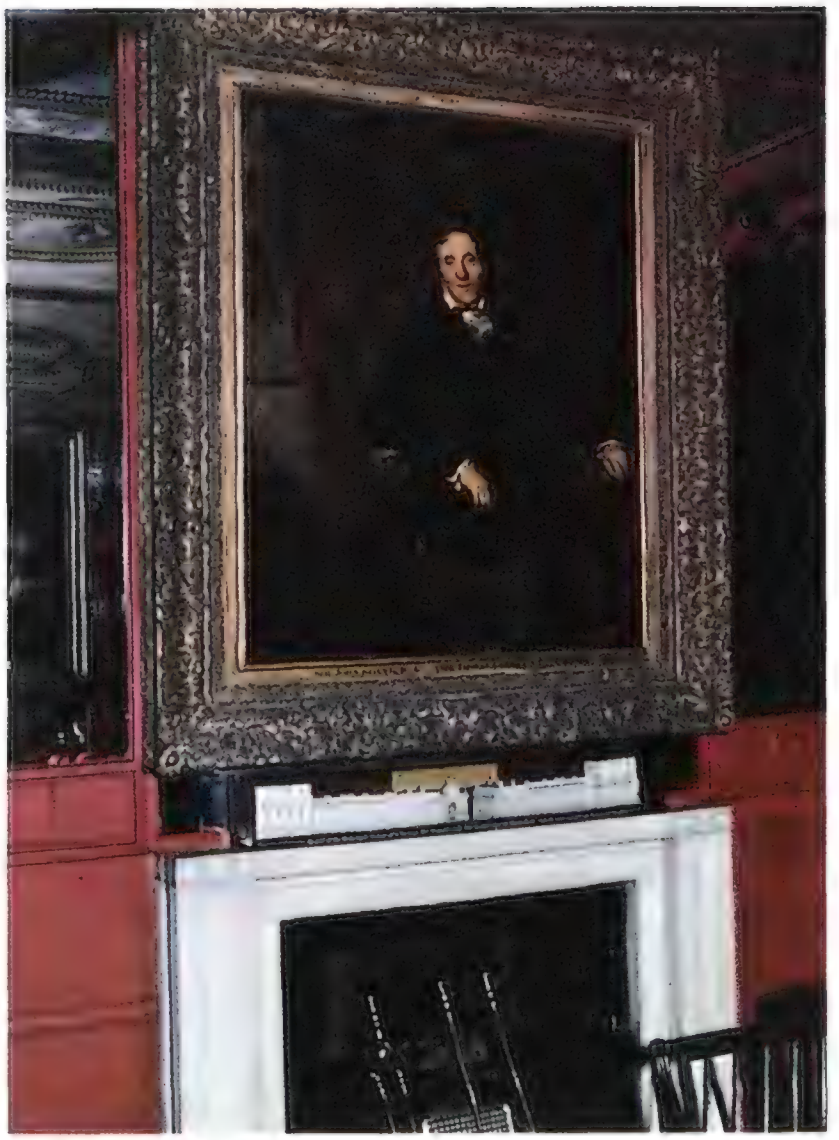
reserved about the interior; it was built "just at the moment when he had solved his problems and created his mature style," he told a recent visitor. "Soane's originality pervades the whole of the house."

That style, which Summerson describes as "uniting the picturesque of the Gothic with the purity of the classical," is well-illustrated in the main space of the ground floor, a library and dining room. Separated only by a set of arches hanging from the ceiling, the rooms flow together as a single space (see above). They are red, and they contain two of the museum's better paintings, Sir Joshua Reynolds' *Love and Beauty* and a portrait of Soane by Sir Thomas Lawrence, completed in 1829 (p. 102). The arches hang from the ceiling like a canopy in profile, hinting at enclosure but never actually providing it. The library, which is toward the front of the house, has tall bookcases topped by a strip of mirror which reflects the whole ceiling and creates the illusion that the ceiling is repeated in an adjoining room. ("It is impossible to say on which plane the actual wall exists; for all esthetic purposes it is not there," Summerson has written of this detail.)

The dining room has a large window opening onto a narrow courtyard filled with sculpture (p. 104) and known as the Monument Court. The sculpture consists mainly of architectural fragments—Soane anticipated the current fad of rescuing ornaments from demolished buildings by 150 years—and it is arranged so as to be seen in conjunction with the urns and vases within the dining room itself. The objects outside are as much a part of the decoration of the room as those inside, thus blurring the distinction between inside and outside.

To the east of the Monument Court is the Breakfast Parlour (p. 104), the small dining room that most scholars consider the quintessential expression of the Soanian style and one of the most remarkable small spaces anywhere. Its form is roughly square. Four segmental arches span the four sides, supported by four pilasters and themselves supporting a spherical ceiling, "a rich canopy," as Soane himself described it

Photographs by Julian Calder



The master of the house surveys dining room-library from a portrait by Sir Thomas Lawrence.

in his 1835 book cataloguing the museum and its contents. Small round mirrors decorate the underside of the arches; larger round mirrors occupy each corner of the dome. An octagonal skylit lantern is at the center of the dome, with "eight Scriptural subjects" painted onto the glass. Concealed skylights at the north and south ends of the room force natural light onto the works of art hung in the room.

There is an enormous amount going on here. In the hands of a lesser architect it would be chaos, but Soane is brilliantly in control, and what emerges is a space that achieves a subtle balance between a number of conflicting forces. The domelike spherical ceiling, never quite reaching down enough for it to feel protective, makes the space at once open and closed, and at once centrally focused and diffused. The mirrors throw confusing reflections while the four larger mirrors each pull together the entire space into a sharp, tiny picture of coherence.

Soane wrote in his 1835 *Description:* "The views from this room into the Monument Court and into the Museum, the mirrors in the ceiling and the looking-glasses, combined with the variety of outline and general arrangement in the design and decoration of this limited space, present a succession of those fanciful effects which constitute the poetry of architecture."

The main floor has one other room of extraordinary note, the Picture Room, where *The Rake's Progress,* another Hogarth series, *The Election,* and a number of Soane's own architectural drawings are displayed. They hang not on the walls themselves, but on layers of hinged panels, which open inward to reveal more pictures behind. It is an ingenious arrangement, compressing into a space 12 by 13 feet enough pictures to fill a 45-foot-long gallery, by Soane's own calculations.

Perhaps the most dramatic moment in the Picture Room comes when the attendant, who by regulation is the only person permitted to operate the picture panels, opens the back layer of hinged doors on the southern side of the room to reveal not a wall but an opening. Suddenly one of the oddest of Soane's spaces, the Monk's Yard at basement level, is revealed below.

Soane was fascinated by ruins, and the Monk's Yard is part of a suite that includes the Monk's Parlour, a set of sham ruins intended, Soane wrote, "to impress the spectator with reverence for the monk." There are the ruins of a monastery, a monk's tomb and other medieval artifacts. It is all a carefully contrived stage set, of course, and Summerson has suggested that the hypothetical monk is Soane himself, "who saw himself, after his wife's death, the loss of one son and the estrangement of the other, as a monklike recluse, devoted only to his studies."

It is difficult to be sure whether this macabre part of the house was intended by Soane to be taken altogether seriously—in his *Description* the architect seems to have his tongue somewhere in his cheek, and the

New York Times *architect critic Paul Goldberger is a longtime admirer of the Sir John Soane Museum.*

In basement of the knit-together trio of buildings is a congeries of rooms and areas, among which is another vivid example of Soane's delight in the imaginative and unusual, the Monk's Parlour.

solemnity of the Monk's Yard is interrupted by a dog's tomb inscribed "ALAS POOR FANNY." Nevertheless, it is of serious interest spatially, for here are the sudden dramatic changes of level, open-well-type spaces and lighting effects for which the house is so famous. The museum expanded during Soane's lifetime across the rear of three adjoining Soane-designed town houses, Numbers 12, 13 and 14 Lincoln's Inn Fields, coming to the street only at No. 13 (although recently the front rooms of No. 12 were added), and the constant alterations led to a number of unusual spaces. The rear area contains a dramatic central well, lit by a domed skylight and extending down to the basement, where an Egyptian sarcophagus is the chief object of display (pp. 106-107). The sarcophagus is in fact one of the museum's most valued objects, purchased by Soane in 1824 when the British Museum declined to pay the £2,000 asking price.

Between the Monk's rooms and the sarcophagus is a crypt, and the lower level also contains catacombs. All of the spaces are filled with busts, urns, vases, statues, friezes, pediments, columns and capitals, perched dramatically in high corners, set into niches or arranged along walls. Space and light tumble through the rooms as if they were tangible objects in themselves, able to be cut and put into place.

Soane was a cantankerous, proud man, with a mysterious obsession with death and the macabre that can easily be seen to pervade his work. Although his reputation was considerable, he was deeply jealous of architects who had achieved even greater success, such as John Nash, the great planner who remade Regent Street in London and designed Carlton House Terrace. (Nash took delight in mocking Soane, and once sent him a letter teasing him for his failure to win the commission to design Buckingham Palace.)

Soane was born in 1753, the youngest child of a bricklayer. He found his career easily and was apprenticed in 1768 to George Dance the younger, an extraordinarily original neoclassical architect whose powerful, primal forms were a significant influence on Soane. He was influenced as well by a three-year trip to Italy that began in 1778, when he saw classical forms firsthand, an experience that translated itself directly into the displays of ruins in the museum and indirectly into a fascination with scholarship that was to influence his

The dining room's light-filled windows seem to merge space with Arcadian sculpture court outside. Below, the Breakfast Parlour: a richly cloistered sanctum of arcs, a dome gleaming with stained glass.

thought and the conception of his house in more subtle ways.

Soane's own practice began slowly, but in 1788 he received the major commission of his career: he was appointed surveyor of the Bank of England, and by 1792 he had begun to rebuild the bank in a style clearly reminiscent of George Dance, with great arches, domes and vaults. Simple grooves and abstracted ornament replaced the traditional pilasters and entablatures, and the total impression was one of austere, flowing space.

The bank was renovated in the 1920s, with such zeal that Soane's spaces were demolished. Unfortunately little else of his best work remains—probably the finest example of his style other than his own house is the Dulwich College Picture Gallery, at West Dulwich just outside London.

But if there had to be only one of Soane's very best works surviving intact, it is surely right that it be his own house. Few architects, in Soane's or any age, have built homes for themselves that were such complete expressions of their own feelings about architecture; probably the best examples in our own time are Frank Lloyd Wright's two Taliesins in Wisconsin and Arizona, and Philip Johnson's Glass House in New Canaan, Connecticut (SMITHSONIAN, January 1975). Soane built his house and acquired his art collection with the intention of turning them into a museum, and in 1833 Parliament passed "An Act for Settling and preserving Sir John Soane's Museum, Library and Works of Art." Soane invested £30,000 of his fortune, which had been inherited by his wife from a wealthy uncle in the construction business, in a trust fund, and the income from the fund together with the rent from the house at No. 12 Lincoln's Inn Fields was to constitute the museum's income.

Buying and polishing to the end

Soane was 79 when the Act of Parliament was passed, and he continued to buy art and build his house until his death in 1837. He bought 52 volumes of drawings by Robert and James Adam, the English neoclassical architects, from the Adam family in 1833, and they remain, outside of Soane's own drawings and models, the most valuable item in the museum's extensive architectural archive.

The building, damaged slightly by bombing in September 1940, closed for the duration of World War II, and by the time the damage was repaired in 1947, it was clear that Soane's trust fund was no longer an adequate source of income. Since then annual grants from Parliament have provided the bulk of the museum's operating budget. Little has changed physically; the most significant alteration was the 1969 ex-

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tension into No. 12 Lincoln's Inn Fields, made possible by the expiration of the lease of a succession of solicitor's firms that had occupied the adjoining house since 1844.

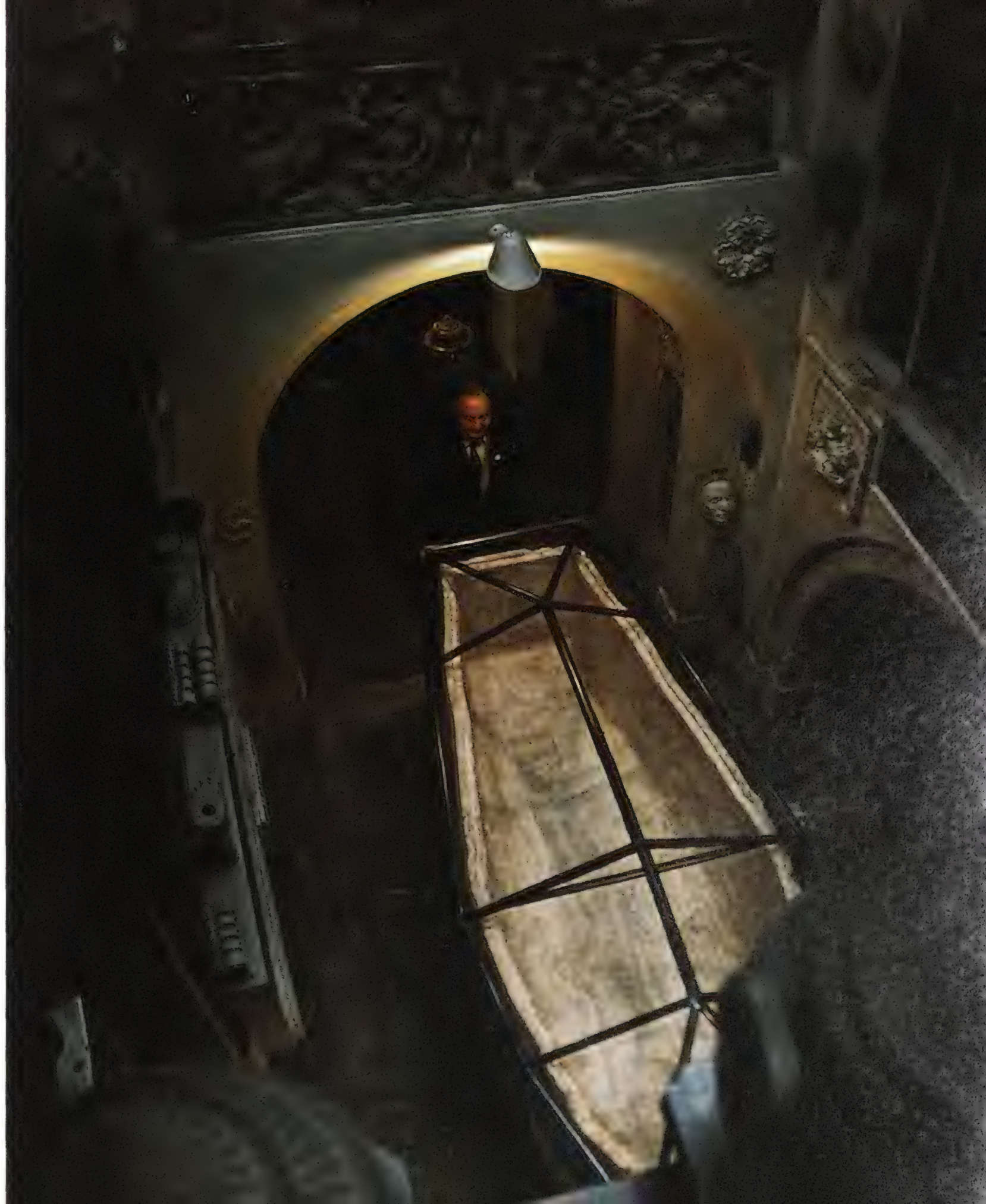
The new space, opened in 1972, contains Soane's original breakfast room (he built No. 12 in 1792, before moving on to No. 13). The space in No. 12 is now used primarily by visiting scholars, who at last have adequate room to view properly the collection's remarkable architectural archive. The Soane Museum would be unique if it were merely the repository for its extraordinary collection of art and architectural memorabilia. Similarly, it would not lack distinction if it were merely the house itself; as Marcus Binney, writing in *Country Life*, said: "It is the neoclassical house *par excellence* not only of England but of Europe. There is no other that sums up the aspirations and interests of the age, and yet provides so intimate a portrait of its creator."

It is, of course, in this last aspect of the house—its role as a personal reflection of Soane—that the building's ultimate greatness lies. It is not merely a repository, but a repository of the objects that delighted this eccentric designer and inspired him. And

it is not merely a fine neoclassical house but an extraordinary one, a building that at once looks to the past and anticipates the future.

Soane's influence was never felt directly; his work was far too personal to permit imitation by any but the most slavish of followers, and for whatever reason, he seems to have had few, if any, of those. For most of the 19th and 20th centuries the museum lay almost unknown, a visiting spot for scholars and historians and a few of the idle curious. But in the 1950s architects began to drift back in greater numbers, the Americans led by Philip Johnson, an unabashed Soane admirer who has worked Soanian canopies into several of his buildings and built for himself an art gallery in which paintings are arranged on movable hanging panels, a clear descendant of the display system in the Picture Room. Paul Rudolph made a visit to the museum in the 1950s as well, and whether or not the influence was direct, his Art and Architecture Building of 1963 at Yale University has light wells and courts not unlike the rear sections of the Soane Museum. Robert Venturi and Charles Moore have both acknowledged their debt to the house; and in a recent house by Moore in California, Mexican straw figures glued to the end of the joists are reflected in the mirrored side of a steel beam, a Soane-like whimsy.

Indeed, many of the modern generation of architects, who have rejected the International Style's purist steel-and-glass orthodoxy in favor of a freer, more symbol-laden approach, seem to have adopted Soane as one of their patron saints. It is too early to say where today's architecture is going, but if the rules of modernism continue to fall by the wayside and history is again seen as a basis for more picturesque and personal styles, then Soane is a logical hero indeed.



Richly embellished central well plummets two floors from domed skylight to Egyptian sarcophagus. The museum's single most dramatic object, Soane got it after the British Museum turned it down for £2,000.

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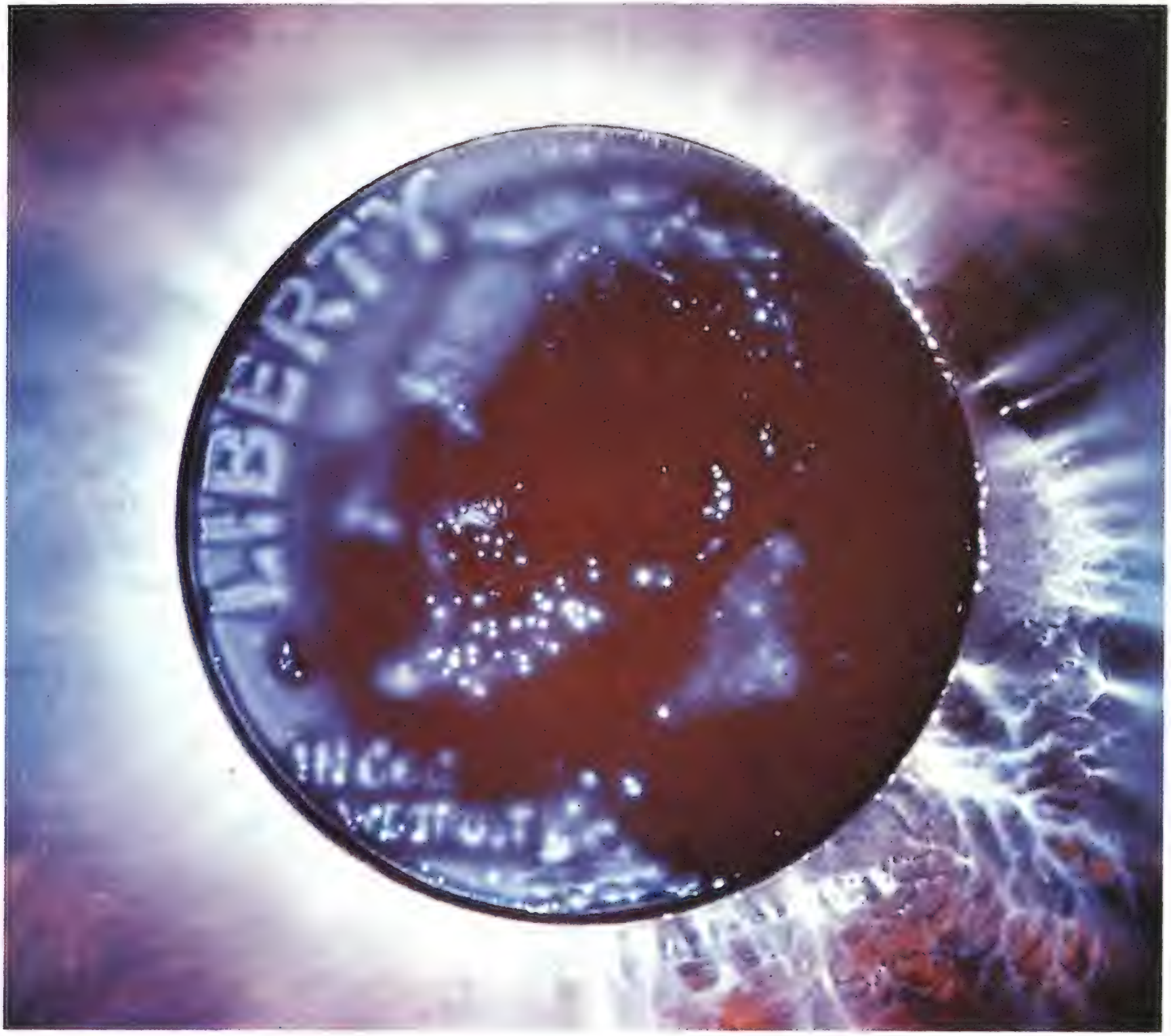


By Edward Edelson

Kirlian photograph of Roosevelt dime produces halo, generally thought to be electrostatic in nature.

Aura phenomenon puzzles experts

Ghost images of Kirlian photography are real enough, but few can agree on its precise significance or utility, if any

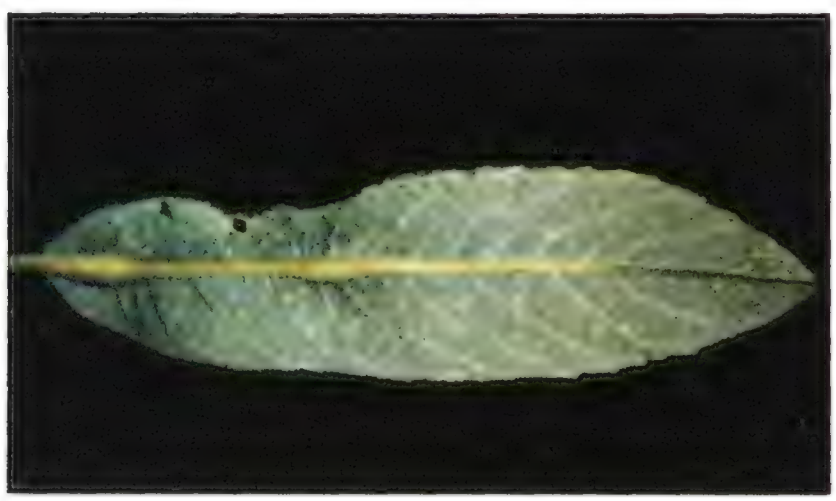
Scientists at the Lawrence Livermore Laboratory in California have developed a new method of nondestructive testing that they feel has great promise in materials science. They place the sample to be tested—a metal part or what have you—on an unexposed sheet of film resting on an electrode, then send high-voltage pulses through the electrode. When the film is developed they can clearly see defects and stresses invisible in ordinary pictures. Every time Richard Petrini and David Lord tell people about their method, they look incredulous. "When we mention high-voltage photography to anyone, he says, 'Oh, you mean Kirlian photography,' and raises an eyebrow," Petrini claims. "We've run into it any number of times."

To understand why Petrini and Lord get this curious response, it helps to check out the experiments of Thelma Moss, a clinical psychologist at the University of California, Los Angeles. Dr. Moss is also doing Kirlian photography, but her subjects are germinating seeds, psychic healers, cancerous rats. She believes she can take a Kirlian photograph of a seed and tell whether the seed is fertile and where the roots will grow, all because of a "bioenergetic" field that is alleged to be a distinct property of living matter. "Bioenergy is an energy field around a living object. Perhaps it's a preexisting field," she suggests. "It's just as if the roots of the seed flow into a preestablished pattern. I think we are dealing with a life force."

And that, in brief, is why Kirlian photography provokes disbelief from most scientists and generates little interest among many of the government agencies which otherwise finance original and promising new ideas. In the 15 years or so since Kirlian photography emerged from the Soviet Union, the American research effort has been rather lopsided. Researchers such as Lord and Petrini, who gather data painstakingly and evaluate it with great caution, have been in the minority. Far more numerous are the groups and individuals prominent in parapsychology, who are cheerfully willing to entertain the notion that they are dealing with all sorts of psychic phenomena, not excluding the always elusive human soul. The hard-science people feel that the activities of the others may be inhibiting government and foundation support for such an interesting field. The parapsychological faction, on the other hand, thinks the establishment's rigidity is hindering recognition of a technique that could hold answers to some of the great unsolved mysteries of the universe.

The technique does produce striking images—flaring coronas that stream out from anything put on the film, whether it's a fingertip or a leaf or a coin. Electrical pioneers such as Nikola Tesla dabbled in the phenomenon, but the modern era began in 1939. Observing diathermy treatments in Krasnodar, Soviet technician Semyon Kirlian noticed a spark jump from the machine's electrodes to the patient's skin, and wondered if he could photograph the flash without using a camera. Replacing the glass electrodes with metal ones to prevent exposure of the film, he placed his own hand on the electrode and switched on the high-frequency current. His hand was badly burned, but when the film was developed, it carried a strange image of his fingers, and Kirlian photography was off and running. It really accelerated when the device Semyon and his wife Valentina had built began producing distorted images of his hand. They took the machine apart and found nothing wrong. Two hours later, Semyon was sick in bed. His interpretation: the illness had cast a "Kirlian shadow" before it actually struck.

Gary K. Poock, who labors at the Man-Machine Systems Design Laboratory of the U.S. Naval Post-



Conventional picture of willow leaf with incipient cancer does not show visible signs of pathology.

Kirlian photograph (same leaf) reveals cancer spots in red. "Bubbles" might be triggered by oncogens.

graduate School in Monterey, California, and has spent about $5,000 of his own money inventing a way to take Kirlian motion pictures, describes it all in orthodox scientific terms. Supplying high-voltage, low-amperage power to the electrode under the film creates a large electrostatic field. The electrons on the film thus have a high potential. The finger on the film has a low potential, so electrons jump from the film to the finger, creating a photo-ionization effect that sends photons cascading down onto the film to create the peculiar image.

Too prosaic, say members of the other school. They suspect that a mystical aura clings to living objects, one that changes with the condition of the organism. Alfred Hulstrunk, a biologist employed by the state of New York, even says that he can photograph emotions. Using a krypton-filled tube of his own design, Hulstrunk has made Kirlian movies which, he believes, can detect a change of mood from love to anger. The subject simply places his finger on the tube, thinks thoughts of love and then switches to hateful thoughts. "Love generally produces a softly glowing pink and blue image," Hulstrunk asserted. "In anger, red predominates, although we might occasionally see some fine blue lines."

Choosing his words carefully, Poock says that one needs real expertise to obtain consistent results. "You're dealing with electronics and physics and film," he declares. "You can make a lot of mistakes. That's what happens in about 95 percent of the research." He and a collaborator, Paul W. Sparks, have identified at least 13 factors that can influence the Kirlian image, including voltage level, voltage pulse rate, moisture, atmospheric gases, the inertial force and angle of the object held against the film, and barometric pressure.

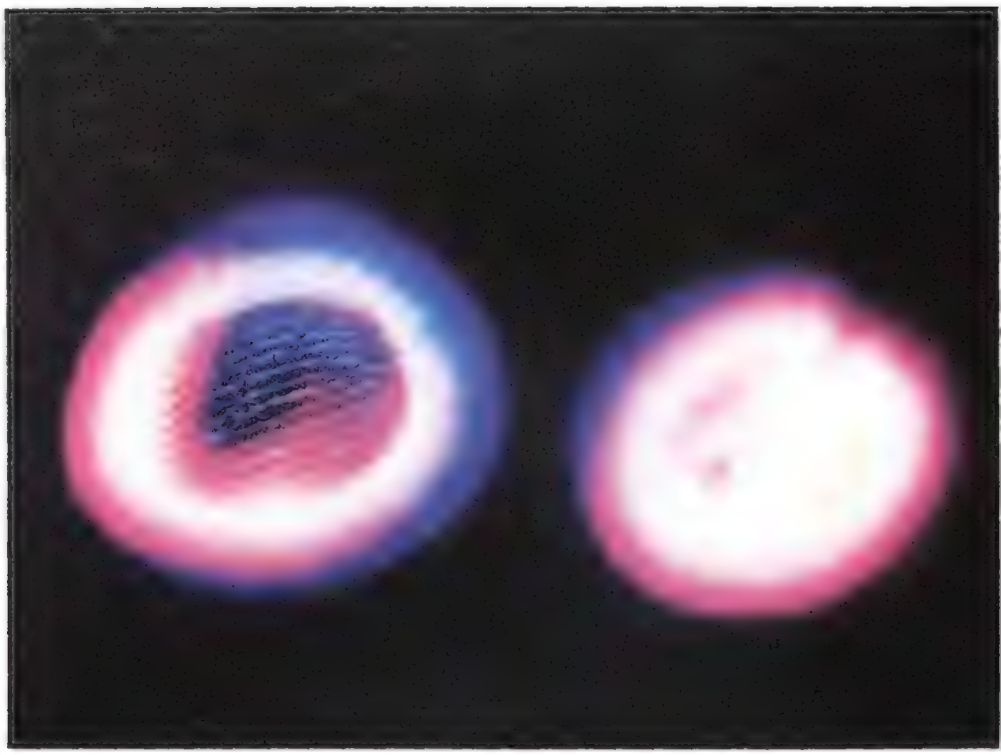
It is now established that you can cut a piece off a leaf and get a Kirlian image that shows not only the intact part of the leaf but also a spooky outline of the cut-off part (p. 113). "The reason may have to do with electrostatics," says Lord. "First you put the leaf down on the film, then you cut off the piece," says Petrini. "You can't see it with the naked eye, but the excised area has already made an impression on the film. It's an ion bombardment effect." Poock recalls a case where "we took some pictures of a rat injected with a drug. He struggled and left moisture on the film. When he was taken off, we got the same ghost image on the photograph."

"No way," Thelma Moss retorts. To her, the cut-leaf effect is a clear sign of some sort of vital energy at work. "Why do we get an image when we cut the leaf

Edward Edelson, New York Daily News *science editor with a lively interest in pseudoscience, wrote on electron microscopes in* SMITHSONIAN, *March 1974.*

Hand of faith healer Olga Worrall in "neutral" state shows standard, moisture-induced corona discharge.

Here, she telekinetically projects "healing energy" toward a patient who is not physically present.



Female, left fingerprint, and male, right print, were asked to "feel" love for a human or a thing.

before we put it on the film? I wouldn't see any purpose mucking about in this field if it were an entirely electrical phenomenon." Dr. Moss can cite instance after instance of such bioenergy detection. Patients who go to psychic healers often claim to feel intense heat when touched by the hands of the healer. "We may be seeing this in Kirlian photography," she declared. "We haven't been able to prove it, but the results are certainly provocative and highly replicable." Then there's the interaction between people and plants. Thelma Moss says she has Kirlian videotapes showing the aura around a leaf getting brighter as a human hand approaches and dimmer as soon as the hand is withdrawn.

Hulstrunk carries the argument a little further. "We feel that maybe all energy fields are available through this enhancement process," he mused. "That would include infrared, ultraviolet, gravitational fields and biomagnetics."

Biomagnetics?

"Mind- or body-instituted energy fields," he explains. "Such things as telepathy, clairvoyance, precognition and so forth."

That kind of thinking is not greeted with cheers by scientists who are trying to get government agencies to finance Kirlian research and who are also trying to publish their results in sober scientific journals. That's why Petrini says he is working in high-voltage photography, and why a paper published last year in *Science*, the journal of the American Association for the Advancement of Science, called it "corona discharge photography." Its conclusion: Kirlian photography, if properly controlled, is an excellent way to measure the moisture content of objects, period. Not quite as earth-shaking as measuring the human soul, but quite enough for David Faust, a researcher on the corona project. "A fast moisture sensor doesn't exist on the market right now. Using corona discharge photography, we may be able to monitor the moisture level within the skin, which, as is widely known, influences diagnostic baselines."

Faust can be rather gloomy about the path Kirlian research has taken since it arrived in this skeptical country. "The Kirlians never said anything terribly fringy," he claims. "They just said, 'Isn't it interesting that the corona varies in a way that reflects human physiology?' Maybe it's a media problem. Too many people looking for a sensational story." Faust thinks he has at least helped to establish some standard conditions that could lead to productive further experiment. The potential is incalculable.

"When the process is quantified, we might be able to answer the question: Is the information in the photographs related to diseases such as cancer?"

Thelma Moss promptly asserts she's done just that in animals and plants, although not in people. Last year she detected marked differences between Kirlian photographs of rats with cancer and those of healthy rats. More recently, she found that the images of plants change in characteristic ways before the plants get tumors. "We have detected very early changes, not in the leaf but in the corona around it, doubtless energetic in nature," she insists. "It's very odd."

Odd indeed, replies Faust. "To speculate about life force is difficult—we just don't know enough."

One thing that everyone in Kirlian research agrees on is that money is hard to come by. Poock has dropped his efforts because he has exhausted his budget. "To build an apparatus to control every possible factor

Same couple projecting anger and resentment, not toward each other, but some external grievance.

would cost $200,000." Faust, now at Drexel University, had received funds from the Department of Defense's Advanced Research Projects Agency and is looking for more. "It's interesting that most of the research in Kirlian photography has been financed by the military and is not classified."

Petrini and Lord are funded by the Energy Research and Development Administration through the University of California, Livermore. The agency is interested in materials science, and Kirlian techniques could be a cheap, quick and accurate way to detect stressed areas in machine components and certain construction materials.

Thelma Moss is essentially self-financed. "We don't get any grants. Volunteers assist in the lab and we pay for our own film. But we're constantly being criticized even for *doing* this research because it isn't supposed to be valid."

There is an International Kirlian Research Association with part-time offices in Brooklyn, but its resources are stretched thin by the expenses of publishing a newsletter and holding conferences. To date, the National Institutes of Health, the National Science Foundation and similar agencies, says one scientist, "are still reluctant to get their feet wet."

Will respectability come to Kirlian photography in the form of an established role in materials engineering? Or, against all odds, will it really prove to be some sort of bioenergy which is showing up on all those Kirlian pictures? Even if there aren't any scientifically satisfactory answers yet, we can at least enjoy the images.

This exposure outlines invisible corn root about to erupt on right. Filaments, left, are part of corona.

Classic example of phantom-leaf effect: ivy tip had been cut off before leaf was placed on the film.

A silver-plated gull earring suggests esthetic effects possible with Kirlian method.

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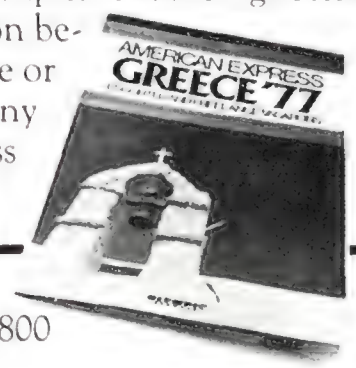

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By Leslie Wong

Roots in China, a first encounter

In 1916 family portrait, Leslie's mother, Sophia, is at far left; his grandfather stands at right.

Born in America, Leslie Wong sought out his family's homeland and got to know his grandfather, who intends to reach 100

When most visitors go to the People's Republic of China, they see factories, communes and schools. Near Peking they see the Great Wall, the Ming Tombs and the Summer Palace. On a recent trip I saw all these but also saw something else, something that few go to China to see: their own family.

Each year, some persons whom the Chinese consider to be "overseas Chinese" are permitted to enter the People's Republic and visit relatives. Until recently, most of the overseas Chinese came from places in the Orient: Hong Kong, Macao and Singapore, for example. But since the recent decrease in tension in Sino-American relations, some Americans of Chinese descent are being allowed to visit their relatives in China. My mother, Sophia Wong, and I were granted visas for this reason.

My grandfather, my maternal aunts, uncles and cousins all live in China. In 1946 my mother immigrated to the United States. She had not seen any members of her family since. For her, the trip would be a return to her native country and to her family after 30 years of absence. I viewed the visit as a unique opportunity to meet relatives whom I had never known before.

I may look Chinese. Certainly, the roots of my ancestry are in China. My father was born in Hong Kong, my mother in Shanghai. I was born in Oakland, California, and spent most of my life there until college. Even though the political fervor and increased ethnic consciousness that I found in college may have made me more aware of my ancestry, I am still conspicuously American in culture—a result of growing up in a middle-class, multi-ethnic neighborhood.

My friends envied me in being able to go to China to get a firsthand look at "my" culture. But my friends were wrong. I found, after my 30-day visit, that despite the fact I look Chinese, know how to use chopsticks and cook a few Chinese dishes, I felt unconnected with the flow of life in China. My culture wasn't in China, of course. My culture is the one in which I grew up. What China was like had always been a mystery to me. I still had little knowledge of China when I walked across the border at Shumchim, near Hong Kong. I had deliberately refrained from doing any extensive research so that I could form my own conclusions from experience and observations. But walking across the border seemed to instill a new feeling of excitement and anticipation.

Most of my relatives live in Shanghai. The patriarch is my 93-year-old grandfather, Chang Tat-seung. Others include an uncle who is a factory superintendent and mechanical engineer; another uncle who is an assembler in an automobile factory; an aunt who is a retired librarian; and another aunt, a medical book illustrator, who arrived from Hankow with her daughter especially for this family reunion.

My grandfather lives with his second wife near the end of a lane. The three-story building has one family to a floor and all share a single bathroom on the second floor. The entrance is dimly lit by a bare bulb. Each time my mother and I visited my grandfather, an old woman who lives on the ground floor opened the

In recent portrait Leslie and mother flank Chang Tat-seung, 93, and grandfather's second wife.

door for us and greeted us. Each time we walked up the twisting stairs that led to his studio, we wondered, because of my grandfather's age, whether he shouldn't have an apartment on a lower floor. When we asked my step-grandmother about this, she told us the government had once offered him a ground-floor apartment but grandfather had turned it down. He said it was good exercise walking up and down stairs.

After the first night of meeting my family at grandfather's apartment, I came away not having a clear picture of exactly who each person was. After seeing various members of my family every day for a week, I was finally able to recognize them and call them by name. One evening, at an elaborate dinner at grandfather's apartment, I took a thoughtful look at my family. I knew a little bit about each one and I was beginning to acquire images of how my cousins were living their lives. Owing to the language problem, I could not communicate directly with them; I realized that I didn't really know them and I felt half-a-world apart from them. Being with my relatives for a week counted for very little. They were really still strangers to me, and if someone had walked in off the street and introduced himself to me as being still another relative, I would have believed him.

After a little while, however, I did begin to learn more. For example, my 15-year-old cousin, Chou Hsiao-mi, probably will work in a factory next year after she finishes high school. She likes to read fiction and studies trigonometry, geometry, physical education, English, music and industry basics. She will also study health and chemistry in her next school term. She is a member of the Red Guard, which was fascinating to me when I recalled the role of the Red Guard during the Cultural Revolution of the 1960s, before her time. Through her mother, she explained her activities as a Red Guard member. She will work on a farm, put up political posters and attend political meetings. She is in the Red Guard, she says, because she is a better student than most in her class.

The longer I am in China, the more curious I get about the lives my relatives are living. On the other hand, my relatives do not seem to be curious about my life in the United States. On few occasions did any of them ask us about our lives at home in our own country. One aunt, the librarian, asked us about the treatment of blacks in the United States. She then discussed the difficulty of changing one's thinking and attitudes and feelings: "Very slowly the changes come . . . looking back over the years since the revolution, I see that I have wiped out the old thinking."

Most of the conversations that I have with my relatives are in English, which most of my aunts and uncles speak. When I speak to my cousins, who do not speak English, my grandfather or my mother translates. I begin to see the ridiculousness of the barriers when I draw on my three years of high school French to talk to one of my cousins. When we had ended our brief conversation, my uncle joked: "It is good that you have finished talking. You have used up all the French words Leslie knows."

I respect my grandfather for his great age and for much more. When he was a 23-year-old student attaché, he arrived in the United States to study agriculture. He visited a number of states, including Washington and Mississippi, before enrolling in Yale University's Sheffield Scientific School in the fall of 1906. He graduated in 1909 with a degree in engineering. It is my grandfather who is telling me these things about himself. He is a man who has lived through three periods of contemporary Chinese history, from the Boxer Rebellion to the formation of the Republic of China in 1912 to the declaration of the People's Republic of China in 1949.

After Yale, he went to France to do graduate work. After a second trip to the United States, he returned home again through France, sailing from Marseilles. On board his ship he met Dr. Sun Yat-sen and spent the next 30 days with him. When they reached Shanghai, grandfather went back to his family and Dr. Sun continued on to Peking, where some months later he helped father the revolution that formed the Republic of China.

California-born Wong—a grown man when he first visited his ancestral home—is now a free-lance photographer living and working in New York City.

This is lunchtime at grandfather's, photographed by Leslie and served by his step-grandmother.

At first, grandfather worked as an engineer at the Anyuan coal mines in 1913. Later he went to Peking and became a professor of physics at Peking University, a job he held until 1930. Returning to Shanghai, he served in the municipal government and later with the People's Republic until he retired in 1956 at 73.

He still does translation work (he is fluent in English, Russian, French and Chinese), reads everything he can get his hands on and takes a daily walk. The last day of our visit in Shanghai, we went for a walk together to a nearby park that he says he normally never goes to "because there are too many old people there" for his comfort.

One of my aunts was curious to know why I didn't speak Chinese. My mother told her that she had tried to teach me when I was a child, but one day when I was playing in front of our house with some friends, an airplane roared over our heads. I shouted with excitement, using the Chinese word for airplane, *fei chi*. When I realized that my friends didn't understand what I was saying, I didn't want to speak Chinese anymore, at all.

My initial reluctance to speak with my cousins began to fade. Somehow we sensed the desire to communicate with each other, so everybody worked harder at it. Sometimes it became embarrassing. One of my cousins had prepared a few words of greeting for us; when I pressed her to say them she blushed and shyly demurred. She then agreed to say the words but only if I said something in Chinese first. I never did hear the greeting.

Another cousin, Chang Ching, who is two years younger than I, works on a farm near Shanghai. He told me that he had a motorcycle at the farm but since there were so many rocks on the land it was too dangerous to ride. I told him I have had several cars, and he asked how fast I had ever driven. I think for a few moments to convert miles per hour to kilometers and finally tell him that I once drove 180 kph. My cousin is surprised that you can drive that fast, but I tell him you can't—lawfully, that is.

Chu Hsiao-pu, a second cousin, whose parents live in New York City, was raised in China by an aunt. He told me about himself so I could tell his parents about his life in China—he considers his aunt and uncle as parents now. He graduated from a middle school (the equivalent of high school in the United States) in 1966, at the beginning of the Cultural Revolution. Working in a dairy, he became interested in biochemistry, which he began to study on his own and then studied in a university. Now he works as a biochemist. Because his natural parents live in the United States, the question came up of his going to live there. He seemed uninterested in the prospect, saying he was perfectly happy in China.

The patriarch of the family is seated at rear, next to another grandson. Leslie's mother is at right.

The meals we had with our family were exceptional. When many of us gathered at my grandfather's apartment for dinner, we would be treated to ten or 12 different courses, all prepared by my step-grandmother. Preparing the food would take all afternoon and because Chinese food is cooked one dish at a time, my step-grandmother hardly ever got a chance to sit down to eat until all the dishes were on the table.

Along with rice, meals would consist of poultry, fish, beef, pork and fresh vegetables. All the food was fresh because the use of refrigerators is not widespread. Part of the daily routine in China was shopping for food. Often, when my mother and I left grandfather's apartment for the night to return to our hotel room, we would see bicycle carts laden with fresh vegetables on their way to market.

The meals we did eat were unusual. Naturally, my relatives did not have ten- or 12- course dinners every night. Meals like those occurred only on special occasions, such as the celebration of the Chinese New Year.

For dessert, we would sometimes buy cookies at a bakery and at other times there was fruit and hard candy. Once three of my cousins, Mao-mi, Hsiao-mi and Mi-mi (two sisters and a cousin who seemed always to be together) offered me a piece of bubble gum and asked me if I knew how to blow a bubble. As I tried to blow one, the sight of the three of them expectantly waiting broke me up, and before we knew it we were all practically hysterical with laughter.

Tea is everyone's cup of tea

After dinner we would have the ever-present cup of tea. Because there is no hot running water in grandfather's apartment, there were always two or three thermos bottles full of hot water and tea to drink on cold days. Everywhere we went in China, we were offered tea by our hosts. On our visits to a commune, a factory or a school, there would always be a hot cup of tea during introductory remarks by officials.

Sampling the different kinds of Chinese foods, such as Cantonese, Northern and Chaochow, was a culinary adventure, but I wondered whether foreign food was available in China. We discovered that there were quite a few restaurants serving such food in the big cities. In Canton, for instance, there are restaurants that serve Moslem food, snake dishes and vegetarian food and Western-style cooking. In one restaurant in Shanghai, we had mashed potatoes and bread instead of rice. Entrees listed were fried and boiled chicken, pork chops and leg of lamb. Instead of tea there was coffee, and knives and forks replaced the traditional chopsticks. The food was delicious.

My mother and I visited four cities: Canton, Shanghai, Peking and Kweilin. Kweilin is in Kwangsi Province in the southern part of the country. The vertical mountains, so often the subject of Chinese landscape paintings, do exist there and are fascinating to see.

Everywhere I went in China I attracted attention. Being six feet tall, carrying two cameras and a shoulder bag, having medium-long hair and wearing Western clothes, I differed radically in looks from most Chinese men, who have short hair and wear the standard gray clothing seen everywhere in China. When I stopped on crowded Shanghai streets to photograph, a crowd would gather around me in moments, filled with curiosity. At such times I felt handicapped because I could not explain my presence to these people. Sometimes they would stand in front of my camera lens and I would have to wave them out of the way. My mother explained that the curiosity was natural because the people of Shanghai, especially, have not seen many foreigners since the revolution.

For my mother, the differences and changes in China were tremendous. Wasted land had been turned into farmland. And students were now required to complete the equivalent of high school, progressing from the illiteracy that was prevalent when she left in 1946. There is always a tendency to want to compare China with the United States, but I think that is not quite fair. After all, the Chinese revolution and the government are not quite 28 years old. The American Revolution took place 200 years ago.

On the evening before we left Shanghai to return home, my mother and I saw our family once again at grandfather's home. After dinner, grandfather gave me gifts to take back to America: some stamps for my father, a map of China and a capsule biography of himself which he had compiled. It begins in 1883, the year of his birth, listing years and corresponding world events up to the year 1983. He intends to live to be 100 years old and doesn't project beyond that. (I think that, considering his current health and level of activity, he will live to be even older than 100.)

Three cousins ride with us to the train station. They ask when we will come to see them again. We tell them that it is expensive but that we will try to come soon. Other uncles, aunts and cousins are at the station to see us off. The train is steam-powered and when we aren't moving fast, the steam drifts off to the side and makes the landscape appear misty.

I realize, after being stared at by curious Chinese, that China is a foreign place to me and that I have few things in common with it. I doubt that I have realized the full implications of my visit and I don't know if I ever will. I would like to return and get to know my family in China as well as I know my family in the United States. I did find that while the roots of my ancestry were Chinese, they have been lost. My visit suggested that there once was something there, but today my life is inextricably rooted in America.

Chang Tat-seung, foreground, relaxes in a Shanghai park. But he finds "too many old people" there.

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Four helicopters plus one blimp equals an aerial crane or "heavy lifter."

By Kurt R. Stehling

A new age of airships may dawn

Safe, comfortable, nonpolluting, modern versions of the Hindenburg *could restore majesty to air travel*

Lately there has been some popular and official talk about the resurgence of airships—dirigibles—for military and commercial purposes. The military services, especially the U.S. Navy, are paying more than casual attention to airship developments, and several study contracts have been awarded.

Leaving military uses aside, what virtues could a potential commercial user, a freight shipper or a passenger mover, see in the relatively slow-moving airship?

Low speed is one benefit. Speed is expensive: the higher the speed, the greater the cost. Fuel consumption in any aircraft, whether airship or airplane, goes up dramatically with an increase in speed. Very roughly, in fact, engine power must *more* than quadruple in order to double the speed. Dirigibles are flown at lower altitudes—say below 10,000 feet—to avoid having to allow too much volume for the gas expansion of high altitudes. Lighter-than-air transportation, then, will most likely be over oceans or flat lands. Medium density cargo of fairly high value such as French bread and flowers, small cars, business machines, computers, high-cost produce such as asparagus, certain types of fruit, mail and newspapers are freight candidates.

Most such cargoes could be moved across the Atlantic in 40 to 50 hours if a speed of about 120 miles per hour could be maintained. An airship would haul the freight from, say, the center of Illinois to an inland point overseas. There would be no extra transshipment from docks.

People traditionally have been drawn to convenient and safe transportation, and one can see a large market for people who now are repelled by the discomforts of modern transoceanic, nighttime, economy jet travel, fear of flying aside.

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In early 1800s, a Frenchman showed how to propel balloon in a given direction.

islands or the archaeological sites of Mesoamerica could be visited by cruise-type airships. Passengers would view the sights from as low as two or three hundred feet, using the windows of observation lounges —which could be opened. Passengers could even be lowered to the ground in special helicopterlike vehicles. They would have none of the attendant discomforts of traveling to such sites by land.

So all these nice things can be done with airships at relatively economical cost and with considerable safety. What sort of airship would meet such requirements? Even the briefest glance at the airship accidents of the past shows that they were avoidable. A little more attention paid to proven German design probably would have prevented structural failures in U.S. Navy dirigibles. A better understanding of meteorology would have barred flying into dangerous weather. The much-publicized burning of the *Hindenburg* probably would not have happened had that great airship been filled with helium instead of hydrogen. Certainly it would not have turned into such a holocaust.

A NASA consultant, Stehling talks and writes about airships and pilots a balloon.

Today, computer analysis can help airship pilots navigate. Various sensors keep tabs on flexures in the hull and positions of controls, and provide accurate information on conditions of the engine or engines. Lightweight but strong structures using such composite materials as glass, carbon and other fibers, laminated with weatherproof plastic fillers, yield high strength-to-weight ratios compared with the relatively soft and weak aluminum and magnesium alloys in use before World War II. Engine control in three axes is easily attainable, and would remove the necessity of large ground-handling crews to cope with surface winds.

Also, the airship can reach various altitudes without ballasting or gas venting. The huge surface area of, say, a 50-million-cubic-foot vehicle, about 1,000 feet long, may in the distant future be coated with lightweight solar electric cells which would generate many hundreds of kilowatts for auxiliary power. Radio altimeters and lasers would give altitude and approach control information. Modern navigation aids would ease the problem of mooring the low-speed airship.

Power could come from high-pressure, lightweight steam turbines or improved gas-turbine propeller systems. Fuels could

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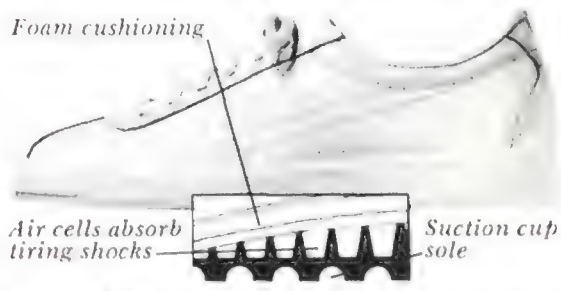

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be contained in fireproof cells or jelled to prevent conflagration in case of accident. Not only would airships so powered be safe, but they could have nonstop ranges of as much as 10,000 miles.

It took most of the 19th century to bring about the improvements in engines, aerodynamics and structures that permitted practical dirigibles to appear in the skies. About 1900 the Germans discovered a remarkable entrepreneur—remarkable partly because he had been a cavalry general—Count (Graf) Ferdinand von Zeppelin.

The Count had decided by the 1890s that dirigibles could be important as long-range aerial reconnaissance vehicles. He was not greatly impressed by the performance of French dirigibles and decided he could do better by putting the lifting gas bags (balonets) inside an aluminum girder-work skeleton covered with a cloth fabric to minimize skin friction.

By 1910, enough of the Count's airships—called Zeppelins—had been built to permit starting up a commercial enterprise within Germany, which operated air services until the beginning of World War I in 1914. This company, DELAG, carried about 10,000 revenue passengers, all safely, in about 1,600 flights.

By 1914 the Zeppelin had established

U.S. airship from before first World War placed the crew in open cockpits.

Count Ferdinand von Zeppelin, father of modern airships, died in 1917.

itself as a far superior flying machine to the traditional "pressure" airships, today called "blimps." (They were called "pressure" since the envelope was kept taut by internal gas pressure.) Then World War I came along, during which the Germans built more than 100 airships. Their raids over England were spectacular, if relatively ineffectual. As fast as the Germans built a "height climber" which could rise above the British interceptor planes, the British would develop a new plane which could reach and shoot down the Zeppelin.

The war's end caused the Germans to think of commercial service again. They built a couple of small passenger Zeppelins which were soon taken over by the Allies as reparations, and the Germans were told to quit the Zeppelin business.

They got around Allied restrictions by "persuading" the Americans to acquire a Zeppelin as a war-reparation item. This was to be a 2½-million-cubic-foot airship, finished in 1924, the LZ126, named *Los Angeles* after her delivery to the U.S. Navy. This airship not only provided employment for the Zeppelin Company, but was also the longest-lasting military rigid airship of all time, being in commission for almost eight years until dismantled in 1932. After *Los Angeles* was completed, Count Zeppelin's successor, Hugo Eckener, decided that a larger and purely commercial ship must be built to keep the Zeppelin Company alive and provide

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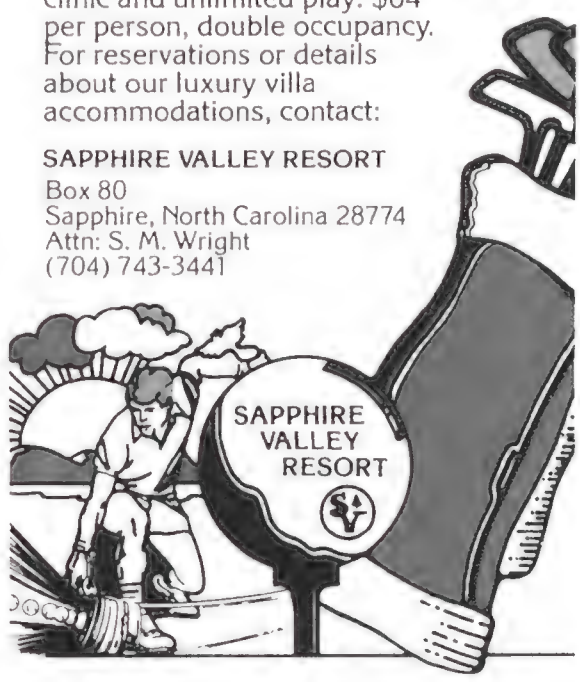

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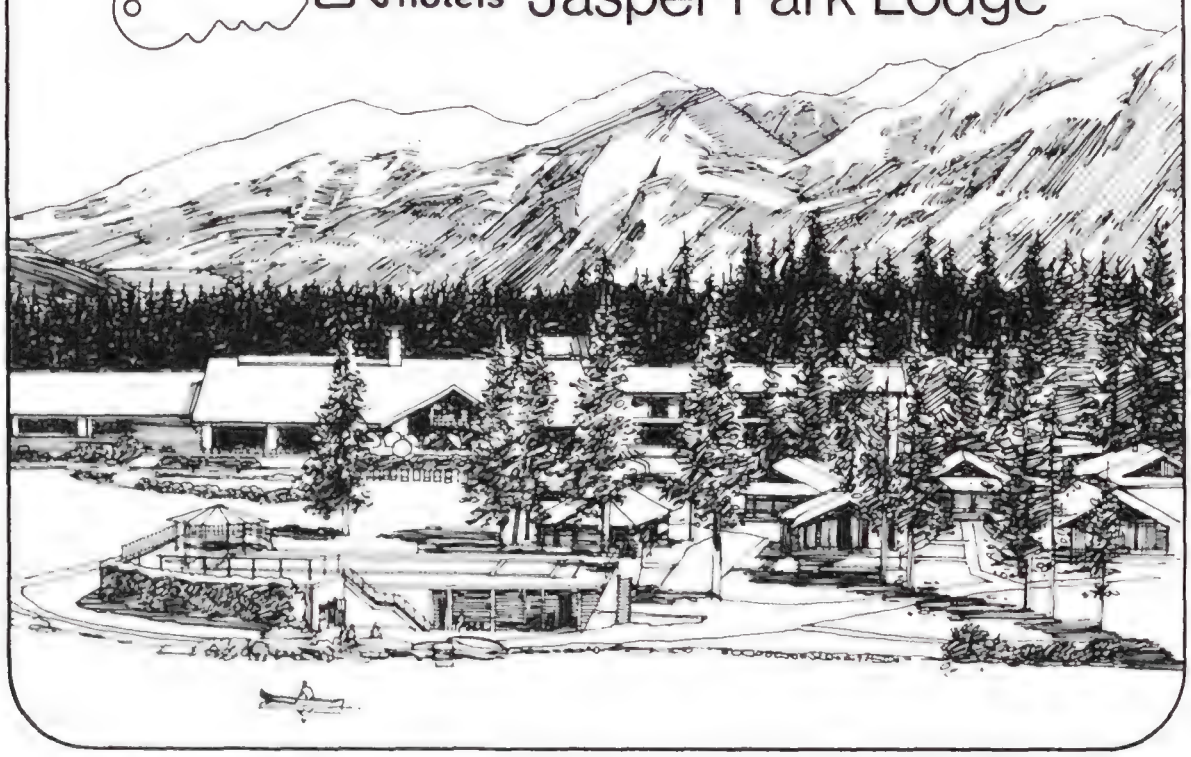

Tables set for gourmet meals gleam with spotless napery in *Graf Zeppelin*'s

a basis for a worldwide air transportation system.

Thus, by stock flotation and public subscription, the LZ127, christened *Graf Zeppelin*, made her first flight on September 18, 1928. She was a German tour de force—she became the most successful commercial rigid airship ever built, flying about 2,000 hours a year on 590 flights over an eight-year period. This remarkable Zeppelin, almost 800 feet long and about 100 feet in diameter, with a volume of almost four million cubic feet, traveled all over the world.

Life aboard a Zeppelin was far from Spartan: the seats, berths, lounges and dining room were far more spacious and luxurious than first-class accommodations on today's jumbo jets. When the larger *Hindenburg* came along, it had sleeping cabins, promenades, a piano, dining room. There was little vibration, noise, rolling or pitching. There is not a recorded case of air sickness on these airships. Young Nelson Rockefeller, a passenger on the *Hindenburg*'s 1936 "Millionaire's Flight," was supposed to have asked one of the stewards, "When are we leaving?"

"Why, we left almost an hour ago, Sir."

dining area. Curtained windows slant to give passengers a view down.

Passengers had no sense of motion and could even open promenade windows to look out, or down, from the often low altitude—around 1,000 feet—to see sights and hear events on the ground.

Early in her career, the *Graf* flew from Germany around the globe—across Siberia, Japan, the Pacific, the United States and back to Germany—giving its passengers unmatched low-level views of Arctic tundra, the Siberian wilderness, mountains, oceans, great cities and plains.

But it remained for the *Hindenburg* to provide the last word in airship luxury. Besides its comfortable accommodations, it offered gracious dining, dancing to music played on an aluminum piano (or from Gramophone records) and a full-time chef whose menus outclassed the meals served on modern jets—all this during a smooth and quiet transatlantic ride, varying from 52 to 64 hours.

In May 1937, having resumed the North Atlantic summer service, she was destroyed in a hydrogen fire while trying to land at Lakehurst, New Jersey. This signaled the end of rigid airship service. The fact that it was not the structure but its inflammable lifting gas, hydrogen, which caused the accident, made no dif-

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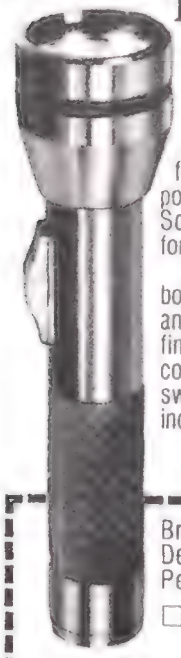

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Ripped by hydrogen blasts, *Hindenburg* crumples near her mooring mast in

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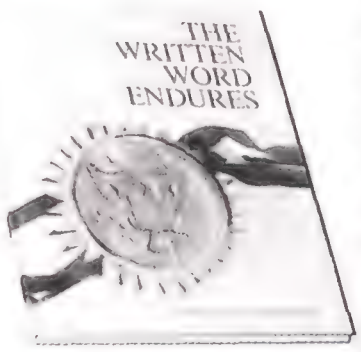

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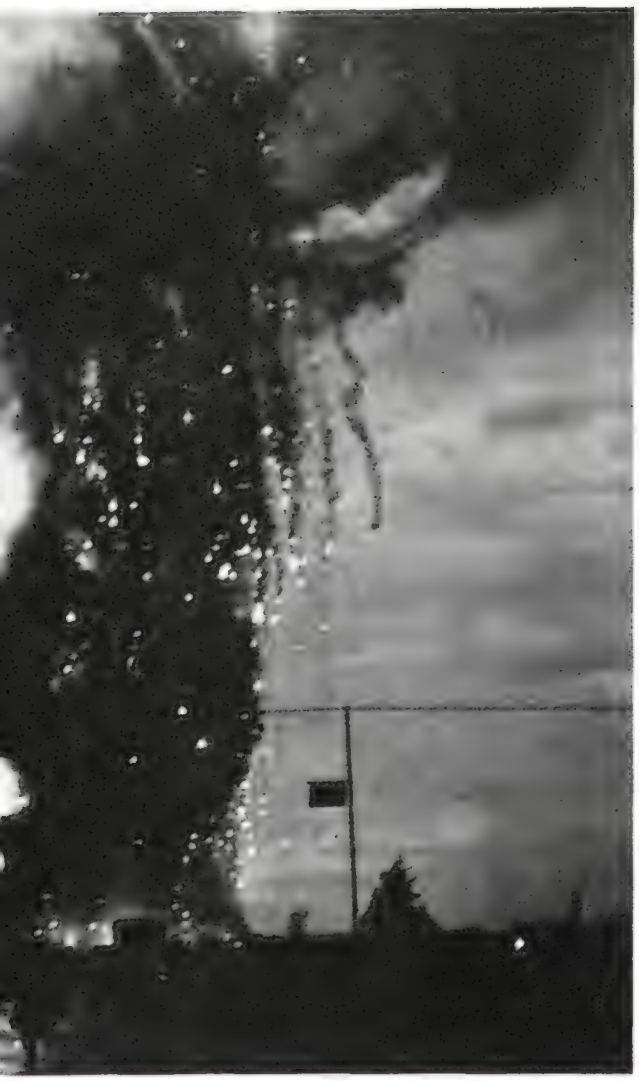
ference with the critics, many of whom had been saying for years that such giants of the sky were dangerous, antediluvian and could never compete successfully with winged aircraft.

It is pointless to discuss what might have happened had the United States released nonflammable, inert helium to the Germans for the *Hindenburg*—an event which the Germans had expected based on rather unofficial promises. The fact remains that even if the *Hindenburg* had flown with helium (which would have reduced her payload somewhat), World War II, which was only two years off, certainly would have scotched the commercial airship.

In the United States the Navy had, since World War I, built and used a variety of helium-filled blimps and rigids as fleet support and reconnaissance vehicles. It ordered two 7 million-cubic-foot giants, *Akron* and *Macon*, in the early Thirties from the Goodyear-Zeppelin Company, an amalgam of the Goodyear Corporation which had built many blimp-type airships, and German design teams



Lakehurst, N.J. Death toll: 35 persons—and a generation of airship progress.

from the German Zeppelin Company. Both dirigibles were lost in what were, in retrospect, preventable accidents.

These ships embodied technical innovations which even the Germans hadn't tried. They condensed water from their engines' exhausts for ballast, which compensated for the ships' being steadily lightened as engine gasoline was consumed. This obviated the need to "valve," or release, precious helium. Also, engines coupled to swiveling propellers were used so that the ships could actually be "driven" down, or flown down, without valving and also flown upwards, without ballasting, during landings and takeoffs.

Another major innovation of the U.S. Navy airships was the carrying of airplanes. About two to four small, lightweight airplanes, called Sparrowhawks, were designed to fly up to the belly of the dirigibles, hook on and then be pulled into a "hangar." They could be released at will, greatly extending the scouting range of these airships. The Smithsonian's National Air and Space Museum contains the only surviving Sparrowhawk.

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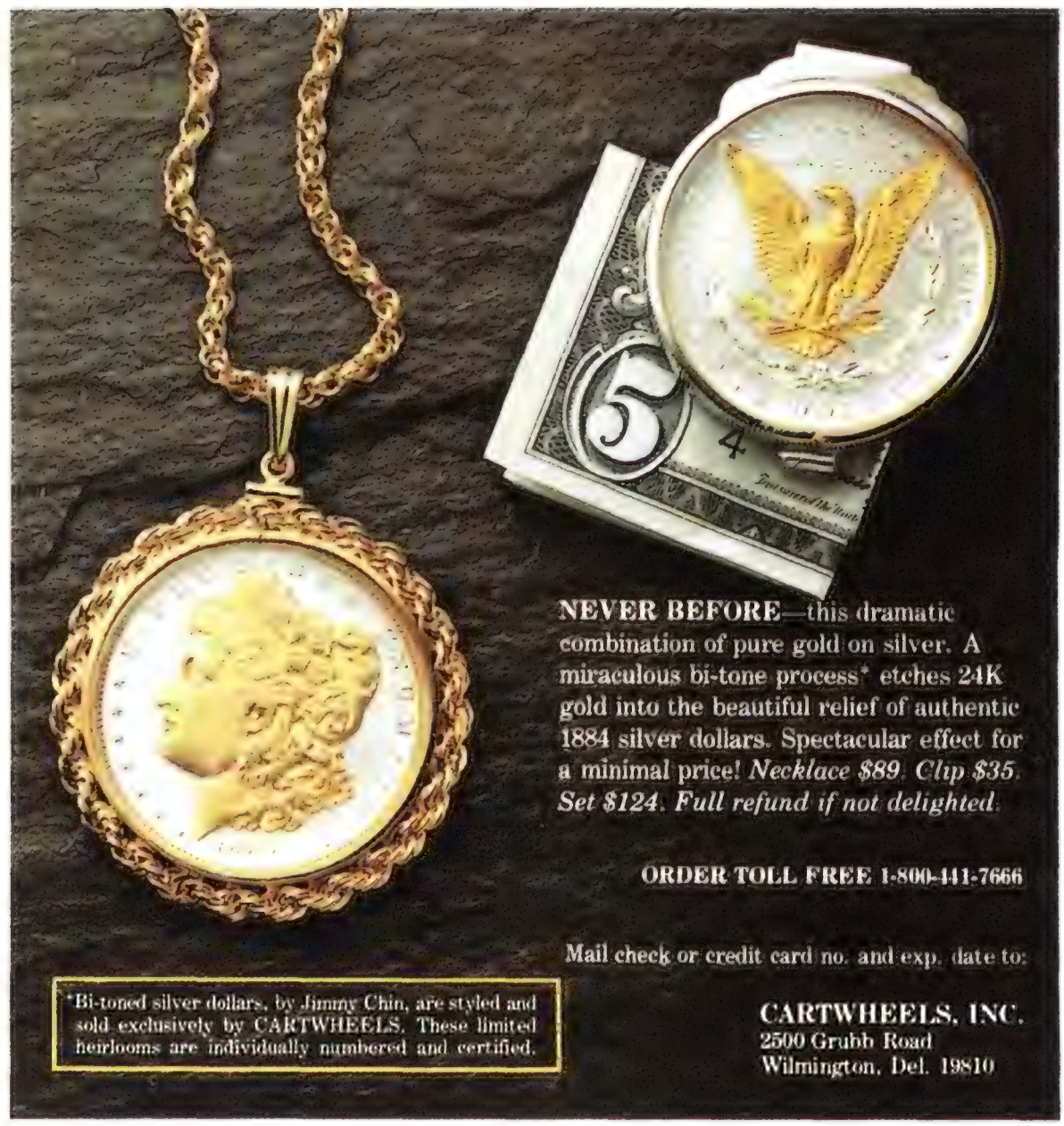
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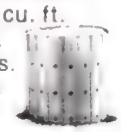

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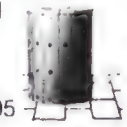

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Most significant, perhaps, in terms of any possible modern airship revival, was the building and flying of the U.S. Navy's experimental ZMC-2, or Tin Balloon, in 1929. This relatively small airship, about twice the size of the modern Goodyear blimp one sees floating overhead, was neither a blimp nor a true rigid. Rather, this dirigible was a metal "egg," cleverly riveted—really stitched—together, with the metal skin, less than 1/16 of an inch thick, acting as a gas-tight shell. The shell or skin thus formed the structural element of the ship, combining a gas-tight hull with the ability to maintain its shape and with the lifting gas pressure inside essentially the same as the atmosphere. This dirigible had none of the disadvantages of the fabric blimp, with its rather poor ability to hold concentrated loads and its tendency to sag or crumple if inside gas pressure were reduced enough to overcome the gasbags' tendency to hold the envelope firm. However, the ZMC-2 envelope or skin *could* wrinkle if the internal pressure dropped slightly below atmospheric pressure from contraction of the helium.

Rigid dirigible activities stopped with World War II. In 1941-42, however, there was remarkable U.S. blimp activity over the North Atlantic. Hundreds of blimps shepherded thousands of merchant vessels safely in convoys. After World War II, the Navy continued blimp development and built the largest blimp ever, the ZPG-3W. Its volume exceeded one million cubic feet, bigger than some German World War I Zeppelins. These ships were used for radar picket patrol off the coast, a job they performed efficiently and cheaply.

Despite this record and the faithful

Proposed stern-drive nuclear airship would have 50,000- to 100,000-mile range.

service these vehicles and their loyal crews performed for the Navy, the blimp fleet was scrapped for various reasons—not all of them technical or operational—in the early Sixties.

So in 1977, NASA, the U.S. Navy, the Coast Guard and other agencies are studying possible applications to their needs. The British are studying the transport of natural gas from distant regions to Europe or the United States. Also, such potential users as the nuclear power fuel industry, which must move large, concentrated loads to distant, inland sites (leaving aside the problem of crossing over mountains), show that some commercial interest is developing. NASA has been motivated to study a variety of airship configurations and possible applications. The low noise level of airship engines, the relatively innocuous exhaust products, and the nondisturbance of the stratosphere should satisfy even the most hard-nosed environmental watchdog. There are, of course, problems to be resolved, among them: cost of development, immense size of building sheds, production and storage of helium. A 1,000-foot, 50-million-cubic-foot airship would be more than 300 feet in diameter; building it would be awkward as well as expensive. And could the airship compete with existing cargo carriers?

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Book reviews

Selected Letters of William Faulkner
Edited by Joseph Blotner
(Random House, $15)

William Faulkner, full-time American writer, died in 1962 at the age of 64. He had managed, in the face of some considerable fame and in a society which is pretty voracious about consuming the personal data, whatever it might be, of its personages, to remain very much his own private property. He had, as an instance, written to Hamilton Basso, that good novelist and writer, who had asked his consent to a *New Yorker* profile Basso was commissioned to write:

"O hell no. Come down and visit whenever you can, but no piece in any paper about me as I am working tooth and nail at my life time ambition to be the last private individual on earth & expect every success since apparently there is no competition for the place."

And to Malcolm Cowley: "It is my ambition to be, as a private individual, abolished and voided from history, leaving it markless, no refuse save the printed books; I wish I had had enough sense to see ahead thirty years ago and, like some of the Elizabethans, not signed them. It is my aim, and every effort bent, that the sum and history of my life, which in the same sentence is my obit and epitaph too, shall be them both: He made the books and he died."

There is, of course, more than a little vanity in this last (as well as some clumsy writing), and it is not at all typical of what you come to feel the man was like in what you have managed to learn about him. Accept the flaw: it is small enough and there are few of them in this vein.

Neil Armstrong by Paul Calle

The National Air and Space Museum has produced a limited edition of 1000 high quality reproductions of Paul Calle's graphite pencil portrait of astronaut Neil A. Armstrong. This unique numbered edition measures 19" x 29" and is signed by both Calle and Armstrong.

Paul Calle was the only artist to be with the Apollo 11 crew as they prepared for flight at Cape Kennedy on July 16, 1969, the morning of their historic launch. NASA had asked artist Calle to document the activities of the Apollo 11 astronauts in the hours before their launch so that the record of this historic event would be as complete as possible. He agreed, though it meant adhering to strict quarantine procedures required of all having personal contact with the crew. The on-the-spot drawings produced by Calle are a documentary record of the final moments on Earth of three men before they made world history. Calle completed this assignment and the work was shown at the National Gallery of Art in Washington, DC, in November 1969, then displayed in the National Air and Space Museum. For the following two years, the Smithsonian Institution circulated these drawings to many galleries and museums around the nation. They are now part of the National Air and Space Museum's collection.

19"x 29" "Apollo 11 Astronaut Neil A. Armstrong" by Paul Calle

This portrait reproduction shows Neil A. Armstrong four days before he became the first human being to set foot on another planet. Each numbered and signed art reproduction sells for one hundred twenty-five dollars. All profits from the sales will be donated to the *Charles A. Lindbergh Memorial Fund,* which has recently been established to provide fellowships and grants to deserving individuals in the areas of science which most interested Lindbergh, such as aeronautics, conservation, exploration, and wildlife preservation.

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Paul Calle and Neil Armstrong sign the prints at the National Air and Space Museum on December 23, 1976.

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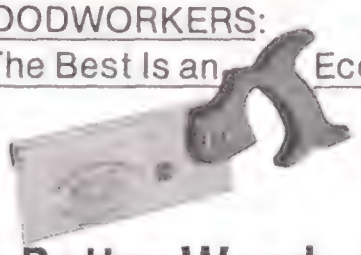

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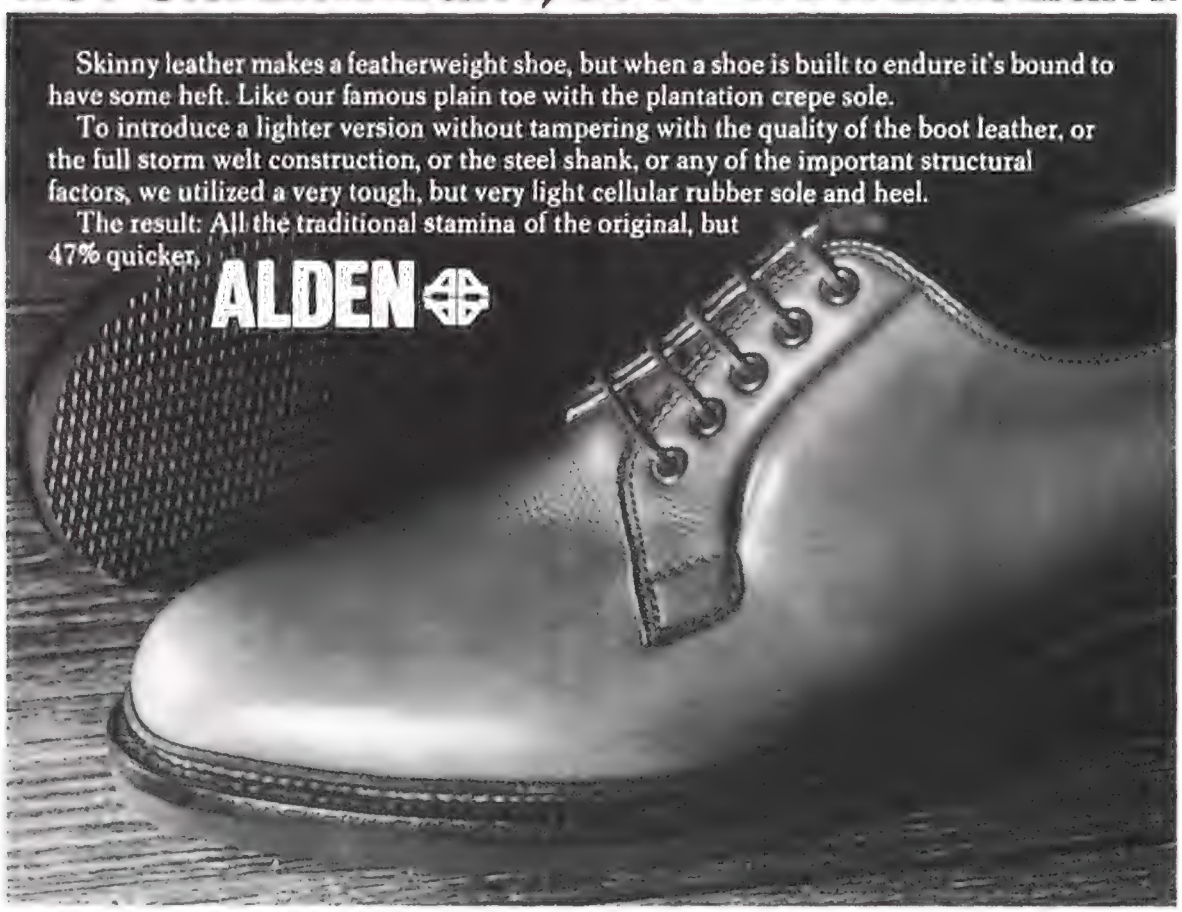
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Given his passion for public anonymity, it follows that 15 years after his death, society being what it is, almost 500 pages of his letters should be published, letters being commonly thought to be—only next to diaries, which are not supposed to be published at all—the most personal form of documentation. But, as Blotner points out—as he must, of course, and rightly—Faulkner was a great artist, and whatever insight into his mind and life can be made available is of importance. At least for those who are concerned with this side of art. Some are content with the art itself. Faulkner, one assumes, would not have been interested in reading his own letters.

What these letters are mainly about is the daily business of living. Thus, making a living takes up a good part of them, and since Faulkner was a creative writer they are, necessarily, about not having enough money. There are letters to agents (who invariably became friends), publishers and editors—friends, too, in time. There is much minutia here, but also a good deal about work in progress, literature in the process of being made. And since Faulkner is one of the few in this nation who can be classed with the European giants of world literature—the Russians, the English, the French—what he had to say about it is, at the very least, of academic importance and, depending on how you feel about such things, maybe much more.

It is a fine book for browsing. Witness: "I am going out now to buy a stamp . . . and to find out what kind of a drink raspail is. It must be raspberry: if raspberries grow anywhere, they grow in France; and if they grow in France the French have made a drink out of them."

And, to his mother: "I have just written such a beautiful thing that I am about to bust—2000 words about the Luxembourg gardens and death." To some the letter containing this might be worth the price of the book.

And, again to his mother: "Went to the Moulin Rouge last night. Anyone in America will tell you it is the last word in sin and iniquity. It is a music hall, a vaudeville, where ladies come out clothed principally in lip stick. Lots of bare beef, but that is only secondary. Their songs and dances are set to real music—there was one with not a rag on except a coat of gold paint who danced a ballet of Rimsky-Korsakoff's, a Persian thing; and

two others, a man stained brown like a faun and a lady who had on at least 20 beads, I'll bet money, performed a short tone poem of the Scandinavian composer Sibelius. It was beautiful. Every one goes there—often you have to stand up."

And: "As regards any specific book, I'm trying primarily to tell a story, in the most effective way I can think of, the most moving, the most exhaustive. But I think even that is incidental to what I am trying to do, taking my output (the course of it) as a whole. I am telling the same story over and over, which is myself and the world."

You can tell a lot about a man from what he admires to read. Faulkner said of Graham Greene's *The End of the Affair:* ". . . For me one of the best, most true and moving novels of my time, in anybody's language." He admired Hemingway, too, a great deal—the pure art and morality of the art. And he loved hunting, horses, whiskey, British tweeds, Dunhill pipes and tobacco, the Southern land, and privacy, in what order we do not know, nor would he tell us.

He did not consider himself to be a literary man. Writer would do.

Writer will do, one of the best of his time, anywhere. Gentlemen, tip your hats. Ladies, smile.

—Bennett Schiff
Board of Editors

Slow Fade to Black: The Negro in American Film, 1900-1942
Thomas Cripps
(Oxford University Press, $19.95)

BETTER BREAKS FOR NEGROES IN H'WOOD, *Variety* reported in 1942. It was the year in which Humphrey Bogart's old flame, Ingrid Bergman, told the black piano player Dooley Wilson to "play it, Sam." And as the song *As Time Goes By* reverberated through *Casablanca,* a milestone was reached in the portrayal of the Negro in film. For Sam was not the old stereotype of the musical darky or the bug-eyed minstrel clown. He was a man: Bogart's wartime friend.

During this same war year, 1942, the NAACP finally pressured the Hollywood bosses into codifying some changes for black performers and technicians. But what a slow fade to the concept of black it was, as Thomas Cripps shows us in his fascinating and detailed history of the Negro in American film from 1900 to that day.

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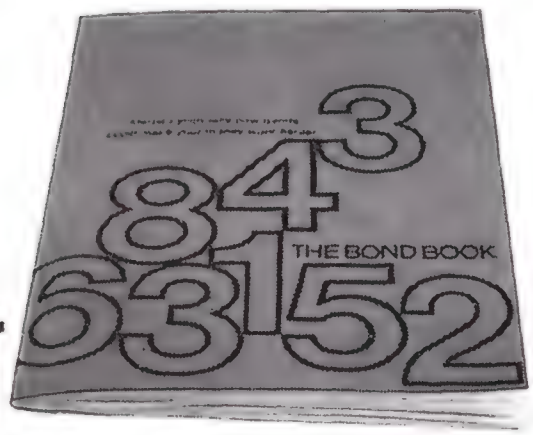

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A dominant irony of the survey is that advances in film esthetics and technique were so often matched by setbacks for the Negro. Take the portrayal of the Negro in D. W. Griffith's epic, *The Birth of a Nation* (1915) (based on a book, *The Clansman*), which celebrated the 50th anniversary of the close of the Civil War. "Good Negroes" were presented as loyal mammies and staunch supporters of the Confederacy. "Bad niggers" were power-drunk and dissolute Reconstruction politicos and renegades. The NAACP's unrelenting attempts to censor this film were doubly thankless, for the patronizing view of blacks that it presented was counterbalanced by the fact that the film was an undeniable artistic advance.

Censorship was no answer. A better one seemed to be a black cinema—the birth of the "race films." The Johnson brothers formed the Lincoln Motion Picture Company and their first film, *The Realization of a Negro's Ambition*, reflected the black bourgeois goals of the 1910s. In the Twenties the more flamboyant films of Oscar Micheaux would dare to treat such themes as lynching. The many fascinating frames from these films which illustrate the book are invaluable because most of Micheaux' films are lost. Their pioneering attempts faltered, however, when Al Jolson, in blackface, ushered in the age of the talkies with *The Jazz Singer*. For neither the Johnson brothers nor Micheaux had the money or financial backing to compete immediately with the makers of the technically advanced sound films.

The sound film, on the other hand, offered a different form of encouragement to the Negro performer, for it was rumored that the black voice suited it better than the white. But what roles could the aspiring black rise to in Hollywood? There were some good subsidiary roles in early musicals, but generally the Hollywood Negro was limited to portraying stereotypes on the screen.

The female servant finally assumed mythic proportions. Hattie McDaniel's great performance as Mammy in *Gone with the Wind*, as well as the outspokenness of the blacks on the set, was light years away from the performances and segregated sets of Griffith's day. Some black critics objected to the Mammy role, but none could object to the depths of McDaniel's interpretation of it. The first Negro to win an Oscar, she accepted it predicting a decent age that would let black youth "aim high and work hard."

How hard blacks worked and how high they aimed is represented by the determination with which they entered the film

Dooley Wilson, Humphrey and Ingrid in *Casablanca*, 1942, a breakthrough in film.

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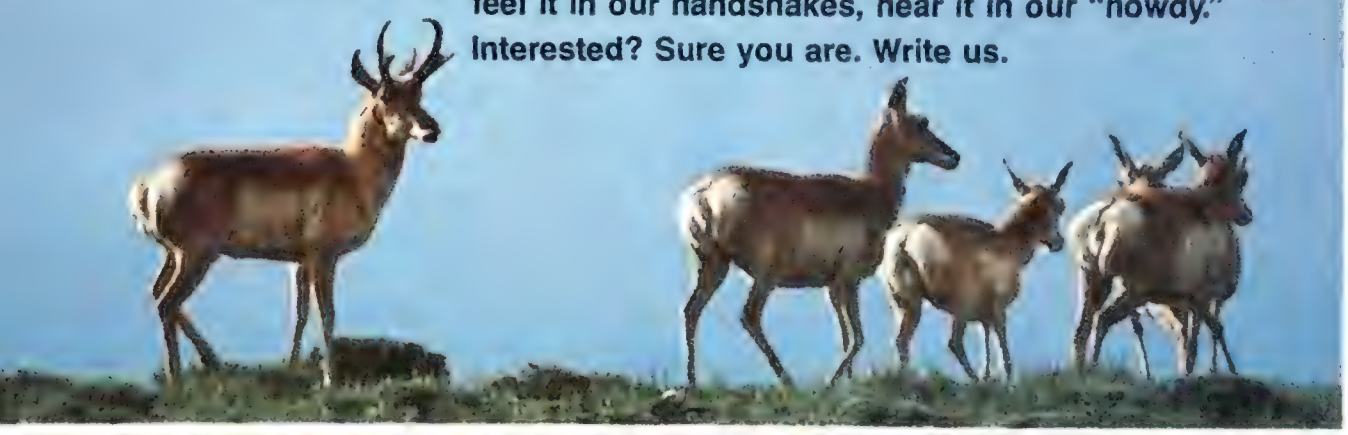

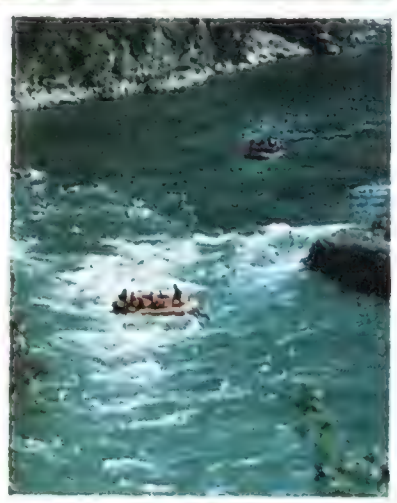

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industry against all obstacles. Cripps' book, of wide interest to the general reader as well as the film buff and sociologist, is an eye-opening presentation of that struggle. An audience of newly educated viewers will want to rescreen these old films to appreciate and to study the Negro performers who contributed to the slow fade to black.

—Julia Markus

Novelist and critic whose novel, *La Mora*, concerns a black's rise in films

A Long, Deep Furrow
Howard S. Russell
(University Press of New England, $18.50)

New England is not commonly reckoned a paradise, and few are tempted by dreams of Boston blazing with gorgeous macaws and palm trees on a balmy shore.

But it is not a wilderness, either, and was not a wilderness even when the Pilgrims landed at Plymouth in perfect time (December 21, 1620) for a complete and unabridged winter.

As Howard S. Russell informs us in his readable and splendid account of three centuries of New England agriculture, the Pilgrims found themselves in a sheltered harbor with cleared fields long farmed by Indians.

The winter was mild, and the next year was productive. The climate was free of the terrible fevers of Virginia and Guiana, he points out, perhaps prematurely, since he also points out that every Indian in Plymouth except one (who was far distant at the time) died in an unidentified pestilence or plague in 1617.

It is certainly unarguable that the absence of malaria or steaming miasmas is one advantage of New England's climate, though one questions whether this benefit was foremost during the Colonists' first winter.

It was decades, the author points out to the astonishment of the ordinary reader, before the English settlers did very much in the way of clearing forests.

They not only found cultivated fields free of the Indians who had occupied them, but also found stores of Indian-raised grain, and later found friendly Indians to advise them on quite novel (and quite necessary) methods of cultivation.

Without these bits of luck they could hardly have survived.

The sweep of the book—and "sweep" is not too grand a word for this rich and

meticulous narrative—depends on clear outlines reinforced with unexpected sharpness of detail.

It will surprise many readers to learn that for the first century and a half, for example, livestock was the great product of New England agriculture, with grain and timber minor in comparison.

By 1650, ordinary people in New England could afford sugar. It is typical of the kind of fact one does not pick up in every book. The real reason beer production languished (though at first it was an important goal) was simply that New Englanders began to think cider just as good. The Roxbury Russet comes in for due praise, and no reader of the book will fall into the gross error that another writer did of calling the Baldwin the great cider apple.

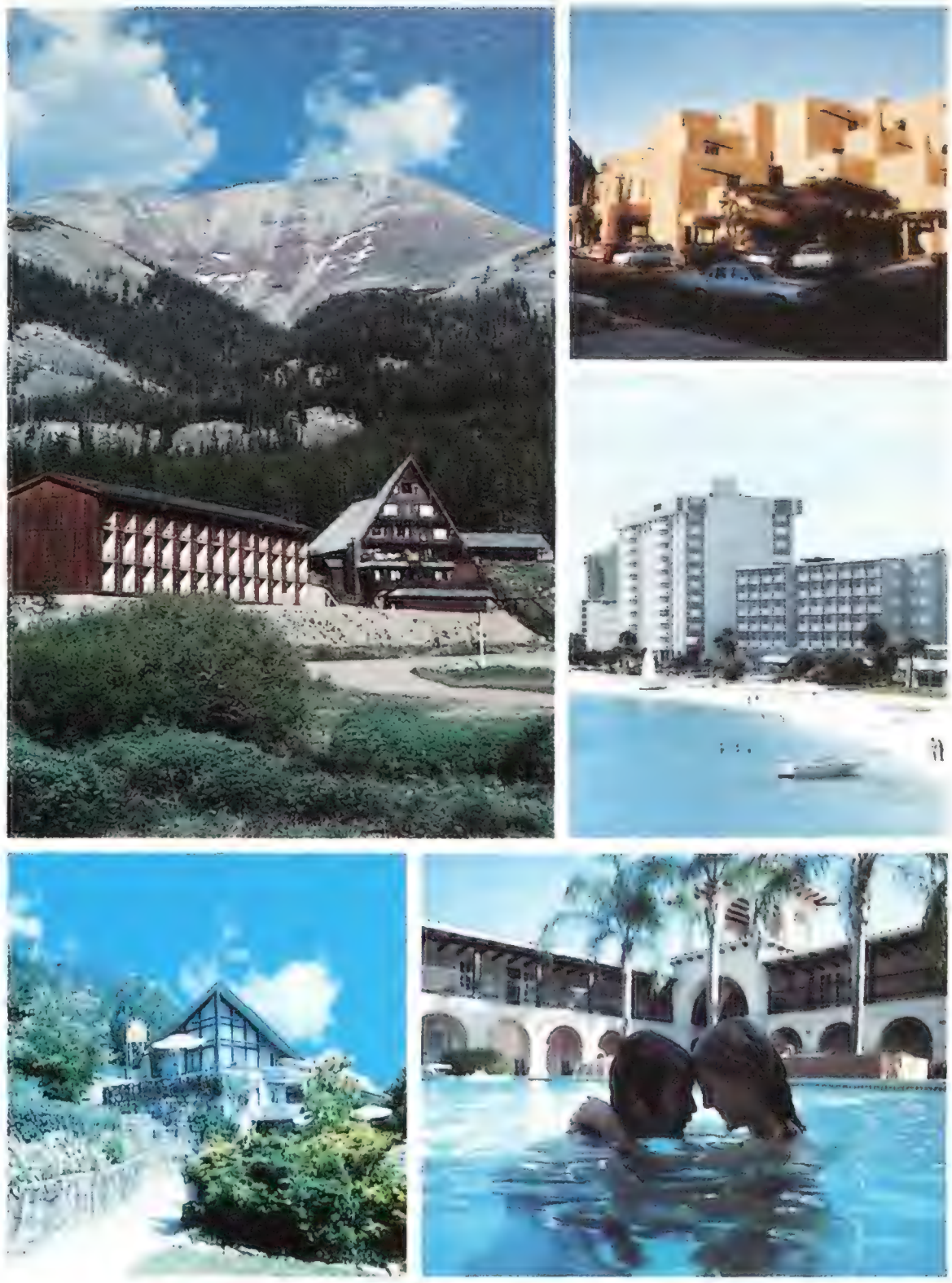
There are 88 citations for apple in the index (there is not a single reference in the index to Virginia or Carolina, by the way), since the author has seen no point in frittering away our time on trifling matters. Curiously, there is nothing about the great New England work in breeding better blueberries, and yet no reader will set the book down with the complaint that the author didn't tell enough. This reviewer went through the pages twice to make sure there are 672 of them. Reading, I would have sworn it could not be that long a book.

—Henry Mitchell
Staff writer for the *Washington Post*

Yukon
Jack Hope (with photographs by Paul von Baich)
(Prentice-Hall, $29.95)

"Some say God was tired when He made it; Some say it's a fine land to shun," wrote Robert W. Service, the gold-rush poet, in his *Spell of the Yukon*. Yet more than 75 years after the gold stampede, the vast and bleak wilderness of tundra and mountains still casts a spell that lures romantics to Whitehorse and Dawson, only to find pizza parlors and a Colonel Sanders chicken eatery on the main street. Would-be pioneers arrive with dreams of adventure, Jack Hope's anecdotal account of today's Yukon tells us, and wind up as suburbanites, caught "in the same damn rut they wanted to get away from in the south. . . ."

"The persisting image of the Yukon seems to be that of a lawless land . . . and



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a population of tough, bearded sourdoughs, sled dogs, dance-hall girls, mounties, and the occasional Indian scout," says Mr. Hope. Well, the Yukon was never particularly lawless, thanks to the Royal Canadian Mounted Police, and today, the dance-hall girls have given way to cocktail waitresses. Civil servants and snowmobiles outnumber the sourdoughs and sled dogs.

But in the few inhabited parts of the land east of Alaska (its 207,076 square miles contain a population of only 21,000), "newness predominates"—carports and lawns, trailer parks, shopping centers. Whitehorse may be a town of ghosts, but it is no ghost town. Even the people are new, most of them having arrived after 1945, when a wartime road built by the U.S. Army began its transformation into the Alaska Highway that now brings in 300,000 tourists a year.

The road also led to the development that is altering life and lore outside the towns. An Indian hunter, who can predict moose or caribou kills by dreaming, says, "I don't think we'll have these dreams much longer," now that his people know telephones and helicopters.

Paul von Baich's photographs (72 pages are in color, with more in black and white) illuminate the stark splendor of the Yukon, its faces and its wildlife. Most of the land remains locked in permafrosted solitude, but the photographer shows the bulldozers on the move.

Using a deceptively simple magazine style, effective in describing the tedium and danger of working in a lead-zinc-silver mine, or a trek to the Kakawulsh Glacier, Jack Hope builds the book around conversations. His most instructive talk is with a Yukon environmentalist who deplores the careless frontier tendency "to proceed, as quickly as possible, to industrialize and render our country here identical to the rest of North America."

The writer and the environmentalist are not alone in their concern for what the future will do to a unique corner of the continent. *Yukon* accompanies a blizzard of anxious books coming out of the neighboring Northwest Territories, where Canada has been holding two years of hearings on the potential effects of a gas pipeline. If the pipeline project detours through the Yukon, the spell of the frontier will be broken at last.

—David Lancashire
The Globe and Mail, Toronto

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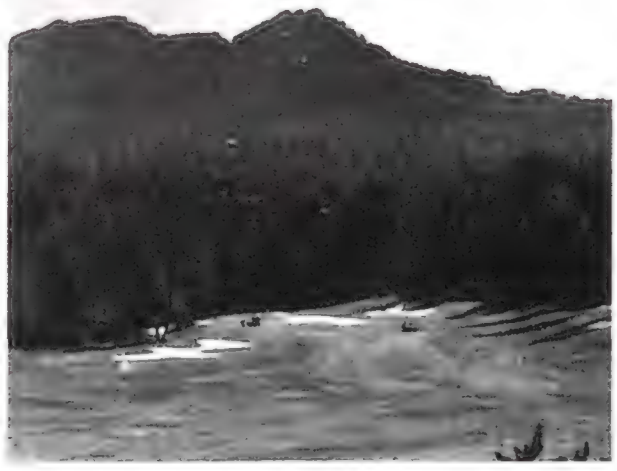

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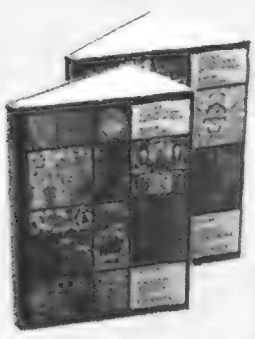

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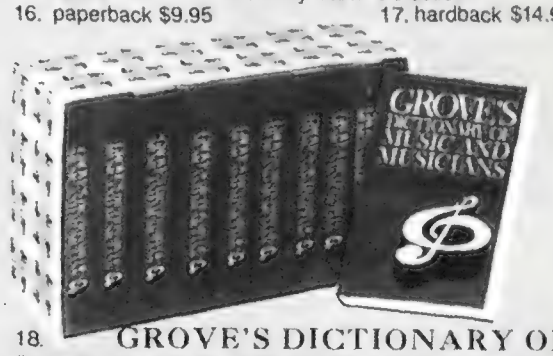

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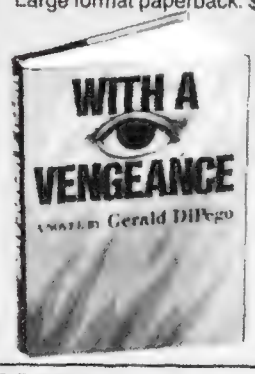

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Additional reading

Quasars (p. 40)

Black Holes, Quasars, and the Universe by Harry L. Shipman, Houghton Mifflin Company, 1976

Beyond the Known Universe by I. M. Levitt, The Viking Press, 1974

Cosmology Now, edited by Laurie John, Taplinger Publishing Company, Inc., 1976

Quasars, Pulsars, and Black Holes by Frederic Golden, Charles Scribner's Sons, 1976

The Universe by Donald Goldsmith, W. A. Benjamin, Inc., 1976

INTERALP (p. 48)

Portrait of a Greek Mountain Village by Juliet DuBoulay, Clarendon Press (Oxford), 1974

Honor, Family and Patronage: A Study of Institutions and Moral Values in a Greek Mountain Community by John Campbell, Oxford University Press, 1964

Harambee Country: A Guide to Kenya by Kenneth Bolton, Geoffrey Bles Ltd. (London), 1970

Guide Book to Mount Kenya and Kilimanjaro, edited by John Mitchell, The Mountain Club of Kenya (Nairobi), 1971

Kenya in Pictures by Joel Reuben, Sterling Publishing Company, 1969

Kenya by Norman M. Leys, Cass (London), 1973

Clover Adams (p. 58)

The Education of Henry Adams by Henry Adams, Houghton Mifflin Company, 1918

The Letters of Mrs. Henry Adams 1865-1883, edited by Ward Thoron,

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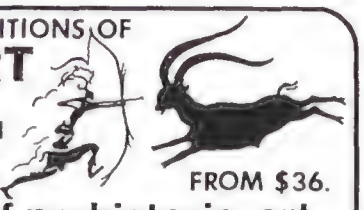

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Little, Brown and Company, 1936

Letters of Henry Adams, edited by Worthington Chauncey Ford, Houghton Mifflin Company (Vol. 1, 1858-1891, published 1930; Vol. 2, 1892-1918, published 1938)

The Young Henry Adams, Henry Adams: The Middle Years, Henry Adams: The Major Phase by Ernest Samuels, Belknap Press, Harvard University, 1964-65

Henry Adams and His Friends, edited by Harold Dean Cater, Houghton Mifflin Company, 1947

Tulipomania (p. 70)

Tulipomania by Wilfrid Blunt, Penguin Books, 1950

The Wonderful World of Bulbs by Bebe Miles, D. Van Nostrand Company, 1963

Gardens, Plants and Man by Carlton B. Lees, Prentice-Hall, Inc., 1970

Jade (p. 80)

Jade—Essence of Hills and Streams by S. Howard Hansford, Purnell and Sons (London), 1969

The Gem Kingdom by Paul E. Desautels, Random House, Inc., 1977

Jade: Fact and Fable by C. E. Hardinge, Luzac (London), 1961

Lawn Ecology (p. 90)

Lawns and Ground Covers by James Underwood Crockett, Time-Life Books, 1971

Turfgrass Science, edited by A. A. Hanson and F. V. Juska, American Society of Agronomy, Inc., 1969

The Lawn Book by Robert Schery, The Macmillan Company, 1961

Back to Nature: The Arcadian Myth in Urban America by Peter J. Schmitt, Oxford University Press (N.Y.), 1969

Wilderness and the American Mind by Roderick Nash, Yale University Press, 1973

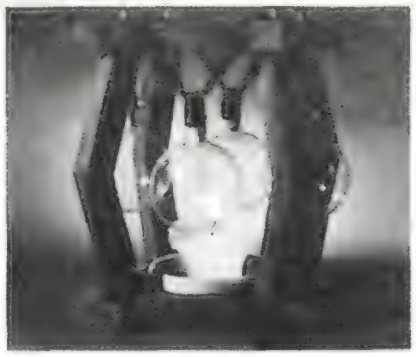
The Ecology of Stray Dogs by Alan Beck, York Press Publishers, 1973

Soane Museum (p. 100)

A New Description of Sir John Soane's Museum, published by The Trustees (London), 1955

Architecture in Britain, 1530 to 1830 by John Summerson, Penguin Books, 1963

The Architecture of Sir John Soane by



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Dorothy Stroud, Studio Books (London), 1961
The Place of Houses by Charles Moore, Gerald Allen and Donlyn Lyndon, Holt, Rinehart and Winston, 1974

Kirlian photography (p. 109)
The Living Aura: Radiation Field Photography and the Kirlian Effect by Kendall Johnson, Hawthorn Books, Inc., 1975
"Image Modulation in Corona Discharge Photography" by John O. Pehek, Harry J. Kyler and David L. Faust, *Science,* October 15, 1976
"Kirlian Photography: An Engineer's View" by Gary K. Poock, *TechniUM,* University of Michigan, Spring 1975
"Photography and Visual Observation by Means of High-Frequency Currents" by Semyon Kirlian and Valentina Kirlian, *Soviet Life,* February 1975
Psychic Discoveries Behind the Iron Curtain by Sheila Ostrander and Lynn Schroeder, Prentice-Hall, Inc., 1970

Roots in China (p. 116)
A Trip to the People's Republic of China by Harold L. Enarson, Ohio State University Press, 1975
China, Yesterday and Today by Mahmudul Aziz, Enterprise Publications (Karachi), 1966
China: The East Is Red by George Bales, Watts (London), 1969
Mainland China Today by Leslie Ronald Marchant, Angus and Robertson (Sydney), 1972
A Memoir of China in Revolution by Chester Ronning, Pantheon Books, Inc., 1974
The Rise of Red China by Robert C. Goldston, The Bobbs-Merrill Company, Inc., 1967
The Ageless Chinese; A History by Dun J. Li, Charles Scribner's Sons, 1971

Airships (p. 123)
An Illustrated History of Airships by A. E. L. Deeson, Spurbooks Limited (Surrey, England), 1973
Giants in the Sky by Douglas H. Robinson, University of Washington Press, 1973
Airships, Yesterday, Today and Tomorrow by Henry Beaubois, Two Continents Publishing Group Ltd., 1973

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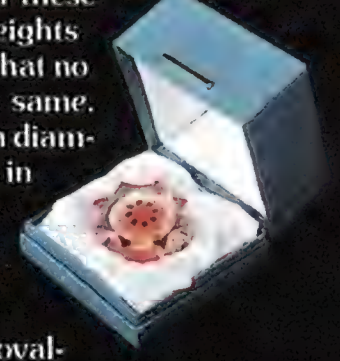

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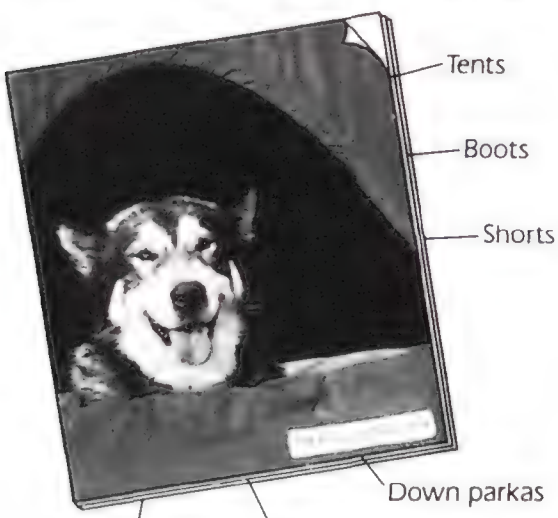

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Smithsonian highlights

Cooper-Hewitt Museum

The second major exhibition at the Smithsonian's National Museum of Design in New York City is of the Royal Pavilion at Brighton. This pleasure palace was commissioned by George IV of England while he was Prince of Wales and is one of the most fantastic edifices in the Western World. The Pavilion has lent its finest drawings by Frederick Crace and Augustus Pugin, two major 19th-century designers. Also included from the Pavilion are paintings, sculptures, decorative objects, furniture and interior architectural and ornamental objects. The entire evolution of the Pavilion is traced, from its simple "farmhouse" beginnings through its brilliant and scandalous heyday, to its neglect under Queen Victoria, ending with its rebirth and 20th-century restoration. The exhibition travels to other museums in the United States and Canada after its closing May 23.

Hirshhorn Museum and Sculpture Garden

"Acquisitions: 1974-1977" represents works acquired through gift and purchase since the museum's opening in October 1974. One hundred and twenty paintings, sculptures and works on paper by more than 90 artists from the 19th century to the present have been added to Joseph Hirshhorn's original endowment. William Morris Hunt, Stuart Davis, Hans Hofmann, Jules Olitski and Robert Motherwell are among the artists included in the new acquisitions.

National Collection of Fine Arts

"Mauricio Lasansky: A Retrospective Exhibition of His Prints" is an exhibit of

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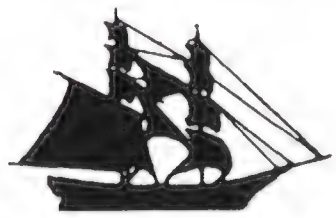

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Museum of History and Technology

"Everything You Always Wanted to Know about Pendulums But Were Afraid to Ask" is a witty, informative exhibit accompanying the large Foucault Pendulum in the center of the Museum. The exhibit demonstrates what pendulums tell us about the Earth's rotation and gravitational field, what scientists learn from them and who developed them.

"Perfect Likenesses" presents paintings by Charles Bird King, Henry Inman and 19th-century lithographic artists. The exhibit examines the credibility of works of art as accurate historical and social documents. It asks the viewer to determine which of the paintings are perfect likenesses of the American Indians they depict—opens April 15.

Musical Weekend, May 13-15

The sixth annual Musical Weekend, sponsored by the Smithsonian's Division of Musical Instruments and Friends of Music, is a special tour designed for music lovers. Events begin with a dinner in the historic Smithsonian castle and greetings from Secretary Ripley. A performance of *La Traviata* in the Opera House of the Kennedy Center, followed by a champagne reception, an introduction to the Smithsonian's world-famous collection of musical instruments, an open rehearsal by the Smithsonian Chamber Players, the gardens of Dumbarton Oaks in Georgetown, tea and music at a foreign embassy, dinner and a gala concert in the Grand Hall of the National Portrait Gallery, and breakfast around the Victorian fountain in the Arts and Industries 1876 exhibit are included in the weekend. For reservations write: Musical Weekend, Museum of History and Technology, Room 4123, Washington, D.C. 20560.

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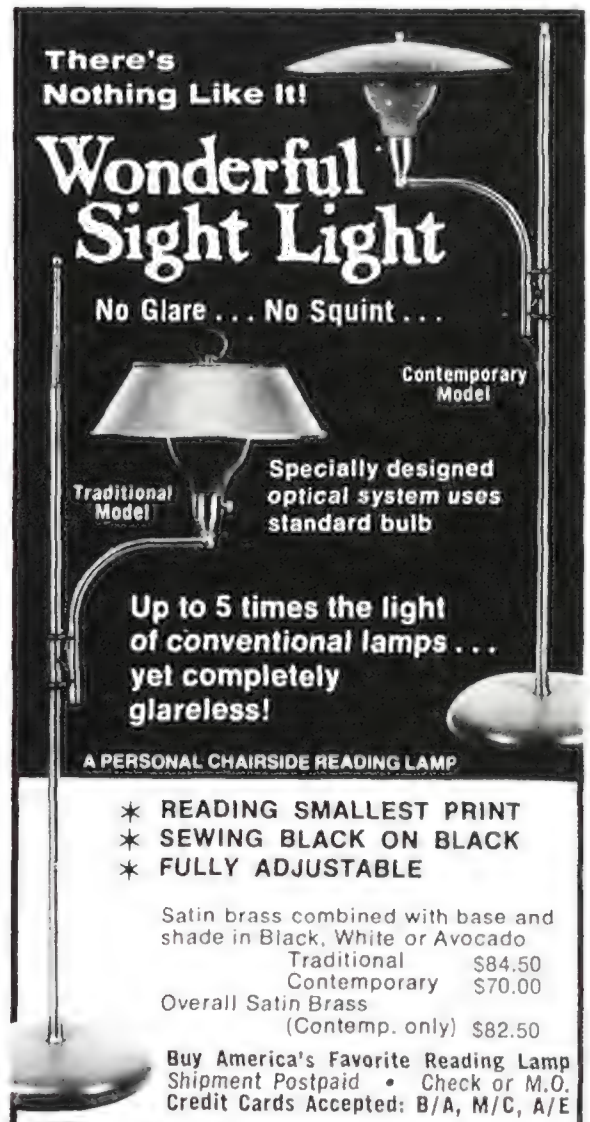

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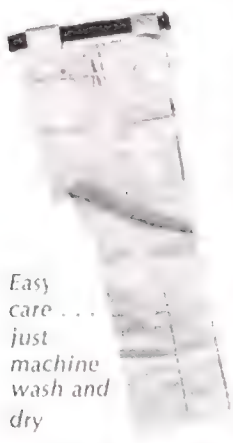

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Museum of Natural History

"Rails of the World" features 42 watercolors by J. Fenwick Lansdowne (see p. 88, March issue). The exhibit will travel to other cities under the auspices of the Smithsonian's Traveling Exhibition Service—through May 1.

Divisions of Performing Arts and Musical Instruments

- The Division of Musicial Instruments presents "Music for Flute," including works by Hotteterre, Rameau, Handel and Haydn—April 4, 8:30 P.M., Hall of Musical Instruments, Museum of History and Technology.
- The Jazz Connoisseur series features Anthony Braxton, April 10, 6 P.M., Hirshhorn Auditorium.
- The Theater Chamber Players perform Musgrave, Beethoven and Dallapiccola, April 11, 8:30 P.M., Baird Auditorium, Museum of Natural History.
- "A Tribute to American Popular Song, 1900-1950" features John Eaton and Linda Cordray, narrated by Martin Williams, April 24, 8 P.M., Baird Auditorium.
- A "Fortepiano Concert" features the Smithsonian's Louis Dulcken fortepiano, circa 1795, April 25, 8:30 P.M., Hall of Musical Instruments.
- Works by Mozart, Beethoven and Dvorak are included in the final Music from Marlboro concert of the season—April 30, 5:30 P.M., Baird Auditorium.

For information, call (202) 381-5395. Resident Associates, senior citizens and students receive discounts.

National Portrait Gallery

"Gallant Harry of the West" is a small exhibition commemorating the 200th birthday of Henry Clay. Portraits of his contemporaries, John Quincy Adams, Andrew Jackson, Daniel Webster and John Calhoun, memorabilia from his life and a full-length portrait of Clay are included in the show—opens April 12.

Smithsonian Institution Traveling Exhibition Service

The Traveling Exhibition Service circulates shows reflecting the diversity of the Smithsonian Institution to all corners of the United States. For information on bringing an exhibition to your area, write: Smithsonian Institution Traveling Exhibition Service, Washington, D.C. 20560. Current SITES shows include:

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- Brunswick, Maine—"Tunisian Mosaics," Bowdoin College Museum, through April 24.
- Champaign, Illinois—"Delacroix and the French Romantic Print," Krannert Art Museum, April 9-May 8.
- Green River, Wyoming—"In the Minds and Hearts of the People: Prologue to the American Revolution, 1760-1774," Sweetwater County Historical Society, through April 25.
- Malibu, California—"The Inaugural Story from George Washington to Gerald Ford," Pepperdine University, through April 24.
- Palatine, Illinois—"Twenty Bicentennial Banners" (by contemporary artists), Harper College, through May 1.
- Philadelphia, Pennsylvania—"Naive Art in Yugoslavia," Museum of Art, through May 1.
- Washington, D.C.—"Paintings and Cartoons by Pat Oliphant," Embassy of Australia, through June 5.
- Washington, Texas—"Blacks in the Westward Movement," Star of the Republic Museum, through May 8.

Regional Program in Denver and Minneapolis-St. Paul

The regional activities of the Smithsonian National Associates Program in Denver, April 11-21, are cosponsored by the Denver Art Museum, Museum of Natural History, Public Library and the State Historical Society. Activities in Minneapolis-St. Paul, April 20-27, are cosponsored by the Minneapolis Institute of Arts, Minnesota Historical Society, the Science Museum of Minnesota and the Walker Art Center. As part of the program:

- The Smithsonian Chamber Players perform on antique instruments and conduct instrument-making workshops.
- E.A. Carmean, curator at the National Gallery of Art, discusses "Morris Louis and the Modern Tradition."
- Herman Viola, director of the National Anthropological Archives, lectures on Lincoln and the Colorado Indian Delegation of 1863.
- The exhibition "Artists and Their Studios" is highlighted by lectures.
- Edward P. Lawson, of the Hirshhorn Museum and Sculpture Garden, lectures on its collection.
- Marc Pachter, historian at the National Portrait Gallery, presents a slide lecture based on the highly acclaimed ex-

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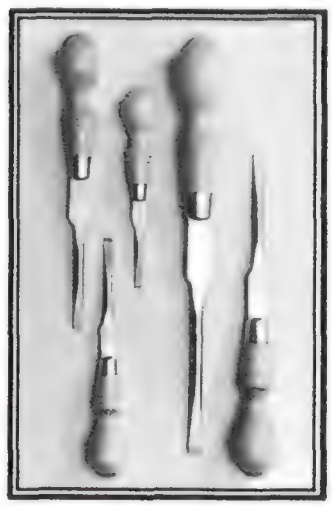
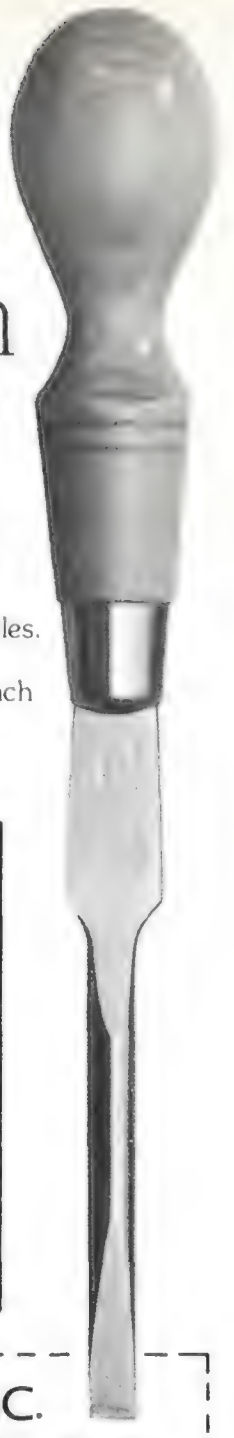
Cabinetmakers' screwdrivers of this design and quality were used by Heppelwhite, Sheraton, and the American Duncan Phyfe. They've been aptly called "Working Works of Art". British made. Comfortable oval beech handles. The flat area below the ferrule accommodates a wrench for extra torque. Lengths (ferrule to tip): 3″, 4″, 5″, 6″ and 8″.





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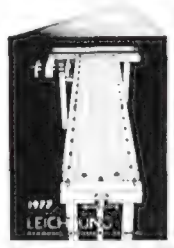

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Travel Benefits for Smithsonian Associates

The Institution strives to offer a varied travel program to its members. Benefits are announced exclusively in SMITHSONIAN. For additional information concerning specific trips write to addresses below.

Foreign Study Tours

Russia—May 31-June 22: Emphasizing art history in Georgia and Armenia • **Baltic, Norway and the Fjords**—July 30-August 18: Cruise on the *Argonaut* to Sweden, Estonia, Russia (Leningrad), Finland; spend a week in the fjords of Norway • **The Isles of Britain**—August 19-September 3: Cruise aboard the *Argonaut* from Edinburgh at Festival time to the Orkney, Hebrides, Scilly islands, Northumbria, northern Scotland, Wales • **Peru and Ecuador**—October 4-25: Art and archaeology • Write Miss Bliss Schumann, Foreign Study Tours, SI 123, Smithsonian Institution, Washington, D.C. 20560 or call (202) 381-5520.

Foreign Charter Tours

Australia and Tahiti—April 11-May 5: Sydney, Melbourne, Canberra and Papeete; "lifeseeing" seminars and excursions into the countryside; choice of side trip to Great Barrier Reef, or Adelaide overland to Alice Springs (originates in San Francisco) • **Istanbul and Asiatic Turkey***—April 18-May 2 or October 10-24: An adventure tour featuring the royal treasury and collections at Topkapi Palace, the Blue Mosque, an evening in a Turkish home and a cruise on the Bosphorus. Select an excursion to Aegean Turkey including Troy and Pergamum, an important Greek and Roman city near Ephesus; or central Anatolia and Cappadocia with its exciting rugged landscape, old caravansary and the unbelievable valley of underground houses and churches that was the center of the Byzantine anchorite movement • **Russia***—May 9-23 or October 3-17: The Bolshoi, Moscow Circus, Hermitage; schools, factories and housing in Moscow, Leningrad and Tallinn • **Poland***—May 16-30: An unusual and fascinating experience including the ancient Baroque city of Cracow, the magnificent tapestry collection in Wawel Castle dating from the Romanesque period, and the romantic birthplace of Chopin. Visit the enchanting fishing village where Copernicus spent 20 years of his life and produced his most important work, and make a pilgrimage to the Jasna Gora Monastery with the famous high altar of Our Lady of Czestochowa • **Paris and Provence***—May 23-June 6, September 26-October 10: Paris plus Avignon, Arles, Nîmes and Aix-en-Provence; museum seminars at the Louvre and Jeu de Paume; walking tours, excursions to the Loire, Chartres and Vaucluse • **Great Britain***—July 25-August 8 or September 12-26: The National Gallery, the British Museum, Tate, Victoria and Albert; London walking tours; choice of excursions to the English countryside; the best of London theater • **Mexico City and Yucatan**—November 4-15 or November 19-30: A study program in Mexico City concentrating on Aztec and Toltec cultures; visits to the Mayan ruins of Chichén-Itzá, Uxmal and Palenque (originates in Mexico City) • Low cost of tours include first-class hotels, most meals, sightseeing, lectures, theater tickets and air fare. Foreign tours are heavily subscribed, so for additional details concerning a specific trip write early to Smithsonian Associates Travel Program, A&I 1270B, Smithsonian Institution, Washington, D.C. or call (202) 381-5635 for information. *Optional predeparture courses will be available for those who are interested.

Domestic Study Tours

San Antonio Festival—April 21-29: Enjoy a colorful celebration highlighting the blend of Anglo and Spanish cultures in this historic city; also visit Austin, La Grange and the hill country of LBJ • **Chesapeake Bay Cruise**—May 7-14; View the scenic and historic bay from the deck of the *Independence* cruise ship with land excursions to Annapolis, St. Michaels, Smith Island, Williamsburg and St. Mary's City • **Grand Canyon Adventure**—May 20-30 or June 3-13: An exciting trip on the Colorado River with emphasis on ecology in May and river adventure history in June (June trip fully booked) • **Yosemite High Country**—June 4-13: Explore high back country, under guidance of Yosemite Institute staff, in small groups suited to individual interests and hiking ability • **Wind River Mountains**—July 30-August 7: A horseback trip into the land of the mountain men; camping at an altitude of 10,000 feet in the midst of turquoise lakes and high meadow wild flowers • **Desolation and Gray Canyons**—July 27-August 3 or September 30-October 10: A white-water trip for the adventurous; explore the geology, wildlife, Indian and outlaw history of Utah's Green River • **Connecticut Antiques**—August 20-27: Learn about 17th- and 18th-century architecture and decorative arts with visits to historic sites, restored homes and antique collections from New Haven to the Berkshires • **Nantucket and Newport**—September 24-October 1: Enjoy the colors of fall and the uncrowded towns on Cape Cod, Martha's Vineyard, Nantucket and Newport for a look at the life and homes of the 18th and 19th century • **Oregon: End of the Trail**—September 10-20: Enjoy the scenic beauty of Mt. Hood, Crater Lake and the rugged coast on a nature tour of this magnificent state • **Dories on the Salmon**—September 10-25: Oar-powered wooden dories provide unique transportation through the wild, spacious, majestic country of the Salmon River in Idaho • **California Wine Country**—October 2-8: Learn about California wines with lectures and wine tasting at selected vineyards in Napa, Sonoma, Santa Clara and Monterey • **Washington "Anytime" Weekend**—Visit the nation's capital and tour the original Smithsonian building. Spend two nights at Loew's L'Enfant Plaza Hotel (reservations required ten days prior to weekend) • Write Associates Travel Program, A & I 1270B, Smithsonian Institution, Washington, D.C. 20560 or call (202) 381-5635 for information.

hibit "Abroad in America: Visitors to the New Nation 1776-1914."

- Paul E. Desautels, curator of the Smithsonian's Department of Mineral Sciences, highlights the exhibit "Fit for a Queen: Selections from the National Gem Collection" with a series of lectures.
- Kjell B. Sandved, Smithsonian film maker, and creator of the photography show "Art in Nature," lectures and conducts photography workshops.
- The Smithsonian's Family Folklore Center focuses on the impact of family folklore on cultural history in a lecture and interviews with local Associates.

National Associates in the Denver and Minneapolis-St. Paul areas should have received invitations by this time. For information, call (202) 381-6491.

Spring Museum Hours

Most museums on the Mall—Arts and Industries, Hirshhorn, Air and Space, Natural History, History and Technology, and the Smithsonian castle—are open daily 10 A.M. to 9 P.M. The Freer, National Collection of Fine Arts, National Portrait Gallery and Renwick close at 5:30 P.M. The Zoo is open daily 9 A.M. to 6:30 P.M. and the Anacostia Neighborhood Museum 10 A.M. to 6 P.M. weekdays and 1 P.M. to 6 P.M. weekends. For information, call (202) 381-6264.

Special to Smithsonian Associates

Upon arrival at the Smithsonian, members are invited to register at the Associates Reception Desk, located in the Smithsonian castle on the Mall. From 10 A.M. to 4 P.M., seven days a week, special orientation materials may be obtained from a staff prepared to assist you. A lounge area is also located in this building.

Luncheon is available to Associates seven days a week in the Court, the members' dining room located on the ground floor of the Museum of Natural History.

Associates planning a future trip to the Smithsonian may write or call for an information packet: Associates Reception Center, Smithsonian Institution, Washington, D.C. 20560; telephone (202) 381-6264.

If you have misplaced your membership card, the Associate receptionist in the castle will issue a replacement upon presentation of your SMITHSONIAN magazine address label. Membership cards are required for luncheon in the Court and discounts in the museum shops.

THERE ISN'T MUCH going on here. But that's not unusual for a springtime morning in Jack Daniel's Hollow.

Two of our rickers have a truckful of wood to unload, split, stack into ricks and burn. But first, they're chatting with a good friend about weather or taxes or the county's new commissioner of roads. You see, at Jack Daniel's we know that hurrying only harms good whiskey. And from what our rickers tell us, it doesn't do people a whole lot of good.

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By Patrick Ryan

Shorties don't always get short shrift in life

But the four-foot-ten mayor of Esch, Luxembourg, is not likely to dethrone Elizabeth II, who is five-foot-four.

The opinion that the bigger they come, the harder they fall, is attributed to Bob Fitzsimmons, the quart-sized ex-heavyweight champion, when he was asked in 1902 about being matched to give away more than 50 pounds to the towering James J. Jeffries. His philosophy was swiftly refuted when Jeffries proceeded to beat him for the second time, thus lending support to that converse pugilistic dictum that a good big 'un will always beat a good little 'un.

That such superiority in stature still brings many advantages in life beyond the boxing ring was later expressed by a Cleveland sociologist who charged that, in our own times, shorter folk are victims of unjust discrimination. The height of the average American male is five feet eight inches, and the sociologist asserted that any man who failed to attain this dimension was prey to the subtle prejudice of "heightism." He is a five-foot-four-inch chap himself.

In romance, the short were considered to be shortchanged because women fantasize their dream lovers as being tall, dark and handsome. Accepted social custom decrees that in heterosexual relationships the male should be taller than the female. The popularity of this last discrimination is demonstrated in the movie industry by the rumored high incidence of sprained ankles among statuesque actresses. These injuries, apparently, occur when a long-legged lovely momentarily forgets that she is standing in a foot-deep trench especially dug so that she should appear to the fans as shorter than her diminutive leading man.

But the fact that so many of our successful screen heroes were so barely knee-high to Garbo that such excavations were required, does lead one to ponder the "heightism" theory that the big lads truly have always had it so good.

Neither Biblically nor mythologically have our human giants greatly prospered from their stature. They are usually characterized as being cruel, stupid, often one-eyed, frequently cannibalistic and doomed to be fall guys for minuscule sling-shooters and pigmy beanstalk-climbers. Goliath of Gath, all six cubits and a span of him, went down before young David without even landing a blow. Sadly, for all his mighty frame, poor old Samson finished up pushing millstones around in Gaza. Massive Hercules was conned into spending 12 years engaged in most unpleasant and unpaid labors.

Dwarfs, on the other hand, have enjoyed a somewhat more favorable legendary press. They are most frequently cast as old men with long beards, possessed of caves full of gold and jewels, and given to helping maidens committed by greedy kings to apparently insoluble spinning problems, or rendered outwardly lifeless by wicked fairies or jealous stepmothers. The seven dwarfs were immortalized for lending Snow White 14 helping hands, but memory cannot summon any super-size higher primate who assisted a damsel in distress until the original King Kong came through the woodwork and did Fay Wray a most timely good turn. All the great Kong got for his kind consideration was to end up defunct and kerplunk upon the sidewalks of New York.

It must be conceded, though, that until now, Mr. Big has been doing pretty well in the Presidential stakes. Up to 1972, 18 of the 19 elections held in this century were won by the taller of two major candidates; and in the single exception in 1924 the winner, Calvin Coolidge, was a mere half-inch shorter than his rival. But in 1976, there came an omen that this near-monopoly of the tallest may at last be tottering. In that contest, there was a dramatic downturn in favor of the smaller man, and Jimmy Carter, at five feet ten inches, was a full three inches shorter than Gerald Ford. Given two or three more elections with the same trend, we may yet see in the White House a veritable Napoleon in stature and determination.

And even if a life of crime is adopted, the odds, it seems, are still favorable to the little man. Six-and-a-half-foot smash-and-grab raiders can have distinct trouble in rapidly jackknifing their lengthy frames into the getaway car. And in raids on banks prudently fitted with TV cameras, they certainly lose out to a onetime professional wrestler and part-time holdup man caught in Phoenix, Arizona. Being a dwarf in stature, he was able to avoid being photographed by the surveillance cameras (though nabbed right outside the bank) because his head barely showed above the counter.

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